

PIBS 2900

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DRINKING WATER SURVEILLANCE PROGRAM

**LINDSAY
WATER TREATMENT
PLANT**

REPORT FOR 1991 AND 1992

ISSN 1180-2154

**LINDSAY WATER TREATMENT PLANT
DRINKING WATER SURVEILLANCE PROGRAM
REPORT FOR 1991 AND 1992**

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PIBS 2900

EXECUTIVE SUMMARY

DRINKING WATER SURVEILLANCE PROGRAM

LINDSAY WATER TREATMENT PLANT 1991 AND 1992 REPORT

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to include all municipal supplies in Ontario. In 1991, 96 supplies and in 1992, 109 supplies were being monitored.

The Lindsay water treatment plant is a conventional treatment plant which treats water from the Scugog River. The process consists of coagulation, flocculation, clarification (upflow clarifier), filtration, and disinfection. This plant has a designed capacity of $22.7 \times 1000 \text{ m}^3/\text{day}$. The Lindsay water treatment plant serves a population of approximately 15,000.

Water at the plant and at two locations in the distribution system was sampled for the presence of approximately 180 parameters. Parameters were divided into the following groups: bacteriological, inorganic and physical (laboratory chemistry, field chemistry and metals), organic (chloroaromatics, chlorophenols, pesticides and PCB, phenolics, polyaromatic hydrocarbons and volatiles) and radiological (radionuclides). Most laboratory analyses were conducted at the Ministry of the Environment and Energy facilities in Rexdale, Ontario. Radionuclides were analyzed by the Ministry of Labour.

Table A is a summary of all results by group.

No known health related guidelines were exceeded.

The Lindsay water treatment plant, for the sample years 1991 and 1992, produced good quality water and this was maintained in the distribution system.

TABLE A
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

SUMMARY TABLE BY SCAN

A POSITIVE VALUE DENOTES THAT THE RESULT IS GREATER THAN THE STATISTICAL LIMIT OF DETECTION AND IS QUANTIFIABLE
A "1" INDICATES THAT NO SAMPLE WAS TAKEN

SCAN	SITE		RAW		TREATED		BIRCH CT		VICTORIA AVE			
	TESTS	%POSITIVE	TESTS	%POSITIVE	TESTS	%POSITIVE	TESTS	%POSITIVE	TESTS	%POSITIVE		
BACTERIOLOGICAL	42	33	78	14	4	28	13	3	23	9	6	66
CHEMISTRY (FIELD)	42	42	100	84	84	100	156	147	94	108	100	92
CHEMISTRY (LABORATORY)	331	305	92	331	251	75	519	460	88	374	332	88
METALS	336	121	36	336	108	32	575	232	40	414	181	43
CHLOROAROMATICS	168	1	0	168	0	0	112	0	0	98	0	0
CHLOROPHENOLS	18	0	0	18	0	0	0	0	0	0	0	0
PESTICIDES AND PCB	396	0	0	408	3	0	176	2	1	156	2	1
PHENOLICS	14	1	7	14	1	7	0	0	0	0	0	0
POLYAROMATIC HYDROCARBONS	84	0	0	84	0	0	84	0	0	67	0	0
SPECIFIC PESTICIDES	56	0	0	57	0	0	2	0	0	2	0	0
VOLATILES	416	2	0	416	47	11	385	40	10	263	27	10
RADIONUCLIDES	35	8	22	35	11	31	0	0	0	0	0	0
TOTAL	1,938	513	1,965	509	2,022	884	1,491	648				

DRINKING WATER SURVEILLANCE PROGRAM

LINDSAY WATER TREATMENT PLANT 1991 AND 1992 REPORT

INTRODUCTION

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to include all municipal supplies in Ontario. In 1991, 96 supplies and in 1992, 109 supplies were being monitored.

Appendix A has a full description of the DWSP.

The DWSP was initiated for the Lindsay water treatment plant in the summer of 1989. Previous annual reports were published for 1989 and 1990.

PLANT DESCRIPTION

The Lindsay water treatment plant is a conventional treatment plant which treats water from the Scugog River. The process consists of coagulation, flocculation, clarification (upflow clarifier), filtration, and disinfection. This plant has a designed capacity of $22.7 \times 1000 \text{ m}^3/\text{day}$. The Lindsay water treatment plant serves a population of approximately 15,000.

The sample day flows ranged from $7.1 \times 1000 \text{ m}^3/\text{day}$ to $13.0 \times 1000 \text{ m}^3/\text{day}$.

General plant information is presented in Table 1 and a schematic of plant processes, chemical addition points and sampling locations in Figure 1.

SAMPLING AND ANALYSES

Stringent DWSP sampling protocols were followed to ensure that all samples were collected in a uniform manner (see Appendix B).

Sample lines in the plant were flushed prior to sampling to ensure that the water obtained was indicative of its origin and not residual water standing in the sample line.

Attempts were made to capture the same block of water at each sampling point by taking the retention time into consideration. Retention time was calculated by dividing the volume of water between two sampling points by sample day flow. For example, if it was determined that retention time within the plant was five hours,

then there would be a five hour interval between the raw and treated sampling. Similarly, if it was estimated that it took approximately one day for the water to travel from the plant to the distribution system site, this site would be sampled one day after the treated water from the plant.

To obtain a representative raw water sample, free from any added chemicals, at plants which used chlorine for zebra mussel control, the operator was required to turn off the chlorine feed to the mouth of the intake and allow enough time for the chlorinated water to clear from the intake works.

Plant operating personnel routinely analyzed parameters for process control (Table 2).

At all distribution system locations, two types of samples were obtained, a standing and a free flow. The standing sample consisted of water that had been in the household plumbing and service connection for a minimum of six hours. These samples were used to make an assessment of the change in the levels of inorganic compounds and metals due to leaching from, or deposition on, the plumbing system. The only analyses carried out on the standing samples, therefore, were laboratory chemistry and metals. The free flow sample represented fresh water from the distribution system main, since the sample tap was flushed for five minutes prior to sampling.

Water at the plant and at two locations in the distribution system was sampled for the presence of approximately 180 parameters. Parameters were divided into the following groups: bacteriological, inorganic and physical (laboratory chemistry, field chemistry and metals), organic (chloroaromatics, chlorophenols, pesticides and PCB, phenolics, polyaromatic hydrocarbons and volatiles) and radiological (radionuclides). Most laboratory analyses were conducted at the Ministry of the Environment and Energy facilities in Rexdale, Ontario. Radionuclides were analyzed by the Ministry of Labour.

RESULTS

Field measurements were recorded on the day of sampling and were entered onto the DWSP database as submitted by plant personnel.

Table 3 contains information on delay time between the raw and treated water sampling, flow rate, and treatment chemicals dosages.

Table 4 is a summary of all results by parameter and by water type. If a parameter was not detected, the total number of negative sample results is given. In contrast, if a parameter was detected at any location, the detailed results for all samples are provided.

Positive denotes that the result is greater than the statistical limit of detection established by the Ministry of the Environment and Energy laboratory staff and is quantifiable. Trace (<T) denotes that the level measured is greater than the lowest value detectable by the method but lies so close to the detection limit that it cannot be confidently quantified.

Table 5 lists all parameters analyzed in the DWSP.

Associated guidelines and detection limits are also supplied on Tables 4 and 5. Parameters are listed alphabetically within each scan.

DISCUSSION

GENERAL

Water quality was judged by comparison with the Ontario Drinking Water Objectives publication (ODWOs). These objectives are applied to free flowing water. When an Ontario Drinking Water Objective (ODWO) was not available, guidelines/limits from other agencies were used. These guidelines were obtained from the Parameter Listing System database.

The guidelines are evaluated on the results from the free flowing samples. Standing samples in the distribution system can show elevated concentrations in certain metals if the water is corrosive or if the standing time is excessive. Flushing the tap until the water achieves the coolest temperature will ensure that the water used for consumption will contain minimum concentrations of metals.

IN THIS REPORT, DISCUSSION IS LIMITED TO:

- THE TREATED AND DISTRIBUTED WATER;**
- ONLY THOSE PARAMETERS WITH CONCENTRATIONS ABOVE
GUIDELINE VALUES; AND**
- POSITIVE ORGANIC PARAMETERS DETECTED.**

BACTERIOLOGICAL

Guidelines for bacteriological sampling and testing of a supply are developed to maintain a proper supervision of its bacteriological quality. Routine monitoring programs usually require that multiple samples be collected in a given system. Full interpretation of bacteriological quality cannot be made on the basis of single samples. Standard plate count was the only bacteriological analysis conducted on the treated and distributed water.

Standard plate count is a test used to supplement routine analysis for coliform bacteria. The limit for standard plate count (at 35°C after 48 hours) in the ODWOs is 500 counts/mL (based on a geometric

mean of 5 or more samples). DWSP bacteriological analysis of treated and distributed water was limited to standard plate count.

Standard plate count (membrane filtration) exceeded the ODWO Aesthetic Objective of 500 counts/mL in 4 of 28 treated and distributed water samples with a maximum reported value of >2,400 counts/mL.

INORGANIC & PHYSICAL

CHEMISTRY (FIELD)

It is desirable that the temperature of drinking water be less than 15°C. The palatability of water is enhanced by its coolness. A temperature below 15°C will tend to reduce the growth of nuisance organisms and hence minimize associated taste, colour, odour and corrosion problems. The temperature of delivered water may increase in the distribution system due to the warming effect of soil in late summer and fall and/or as a result of higher temperatures in the source water.

Field temperature exceeded the ODWO Aesthetic Objective of 15°C in 10 of 36 treated and distributed water samples with a maximum reported value of 23.0°C.

CHEMISTRY (LABORATORY)

Colour in drinking water may be due to the presence of natural or synthetic substances as well as certain metallic ions. Colour is measured in Hazen units (HZU).

Colour exceeded the ODWO Aesthetic Objective of 5 HZU in 12 of 35 treated and distributed water samples with a maximum reported value of 10.0 HZU.

Dissolved organic carbon exceeded the ODWO Aesthetic Objective of 5.0 mg/L in 14 of 35 treated and distributed water samples with a maximum reported value of 6.8 mg/L.

Elevated conductivity is often associated with high hardness levels.

Conductivity exceeded the European Economic Community Aesthetic Guideline Level of 400 umho/cm in 24 of 35 treated and distributed water samples with a maximum reported value of 568 umho/cm.

The ODWOs indicate that a hardness level of between 80 and 100 mg/L as calcium carbonate for domestic waters provides an acceptable balance between corrosion and encrustation. Water supplies with a hardness greater than 200 mg/L are considered poor and possess a tendency to form scale deposits and result in excessive soap consumption.

Hardness exceeded the ODWO Recommended Operational Guideline of 80-100 mg/L in all 35 treated and distributed water samples with a maximum reported value of 262 mg/L.

Turbidity in water is caused by the presence of suspended matter such as clay, silt, colloidal particles, plankton and other microscopic organisms. The most important potential health effect of turbidity is its interference with disinfection in the treatment plant and the maintenance of a chlorine residual. The ODWO Maximum Acceptable Concentration for turbidity is 1.0 Formazin Turbidity Unit (FTU) and applies to the water leaving the treatment facility.

Turbidity exceeded the ODWO Maximum Acceptable Concentration of 1.0 FTU in 1 of 14 treated water samples with a maximum reported value of 1.18 FTU. This result was not confirmed by the corresponding and more reliable field turbidity result.

METALS

At present, there is no evidence that aluminum is physiologically harmful and no health limit for drinking water has been specified. The measure of aluminum in treated water is important to measure the efficiency of the treatment process. The ODWOs indicate that a useful guideline is to maintain a residual below 100 ug/L as aluminum in the water leaving the plant to avoid problems in the distribution system.

Aluminum exceeded the ODWO Recommended Operational Guideline of 100 ug/L in 28 of 35 treated and distributed water samples with a maximum reported value of 730 ug/L.

Iron exceeded the ODWO Aesthetic Objective of 300 ug/L in 1 of 35 treated and distributed water samples with a maximum reported value of 340 ug/L.

The presence of elevated lead in the standing samples in the distribution system indicates that household taps should be flushed, until the coolest water temperature is obtained, before water is used for consumption. The concentration of lead and other metals can increase while the water is standing in the service line and home plumbing. The health related ODWO for lead is applied to the free flowing sample.

ORGANIC

CHLOROAROMATICS

The results of the chloroaromatic scan showed that none were detected above trace levels.

CHLOROPHENOLS

The results of the chlorophenol scan showed that none were detected above trace levels.

PESTICIDES AND PCB

Hexachlorocyclopentadiene was found at positive levels in 7 of the 17 treated and distributed water samples analyzed. The maximum observed level was 300 ng/L. This was below the United States Environmental Protection Ambient Water Quality Criteria of 206,000 ng/L.

PHENOLICS

Phenolic compounds are present in the aquatic environment as a result of natural and/or industrial processes. The ODWOs have been revised to replace the aesthetic phenolic objective with objectives for specific phenols.

Phenolics were found at a positive level in 1 of the 14 treated and distributed water samples analyzed. The maximum observed level was 1.6 ug/L.

POLYAROMATIC HYDROCARBONS

The results of the polyaromatic hydrocarbon scan showed that none were detected.

SPECIFIC PESTICIDES

The results of the specific pesticide scan showed that none were detected.

VOLATILES

Methylene chloride (dichloromethane) was found at a positive level in 1 of 36 treated and distributed samples with a reported value of 6.5 ug/L. This was below the ODWO Maximum Acceptable Concentration of 50 ug/L. Contamination was suspected by the laboratory.

The detection of benzene, ethylbenzene, toluene and xylenes at low, trace levels may be a laboratory artifact derived from the analytical methodology. Trace levels of styrene are considered to be laboratory artifacts resulting from the sample shipping containers.

Benzene was found at positive levels in 2 of the 36 treated and distributed water samples analyzed. The maximum observed level was 0.80 ug/L. This was below the ODWO Maximum Acceptable Concentration of 5.0 ug/L.

Toluene was found at a positive level in 1 of the 36 treated and distributed water samples analyzed. The maximum observed level was 0.70 ug/L. This was below the ODWO Aesthetic Objective of 24 ug/L.

O-xylene was found at positive levels in 2 of the 36 treated and distributed water samples analyzed. The maximum observed level was 0.55 ug/L. This was below the ODWO Aesthetic Objective of 300 ug/L.

Trihalomethanes (THMs) are produced during the water treatment process and will always occur in chlorinated waters. THMs are comprised of chloroform, chlorodibromomethane and dichlorobromomethane. Bromoform occurs occasionally. Results are reported for the individual compounds as well as for total THMs. Only total THM results are discussed. Starting in 1991, samples from the distribution system were quenched with sodium thiosulphate to stop the further production of THMs in the sample bottle. This provided a more representative estimation of the THMs consumed in tap water.

Total trihalomethanes were found at positive levels in all 36 treated and distributed water samples analyzed with a maximum level of 149.3 ug/L. This was below the ODWO Maximum Acceptable Concentration of 350 ug/L.

RADIOLOGICAL

RADIONUCLIDES

There are more than 200 radionuclides, some of which occur naturally and others which originate from the activities of society. The radionuclides currently of greater interest from a health view-point are tritium, strontium-90, iodine-131, cesium-137 and radium-226. The gross beta and gross alpha determinations are suitable for preliminary screening except for tritium which must be measured separately. Radionuclides are measured in becquerels per litre (Bq/L). No results were above the available guidelines.

CONCLUSIONS

A number of volatile organics were found at positive levels in 1991 and were also reported as positive in the previous annual reports. No positive levels were found in 1992. The occurrence of volatiles appears to happen in the summer.

No known health related guidelines were exceeded.

The Lindsay water treatment plant, for the sample years 1991 and 1992, produced good quality water and this was maintained in the distribution system.

FIGURE 1

LINDSAY WATER TREATMENT PLANT

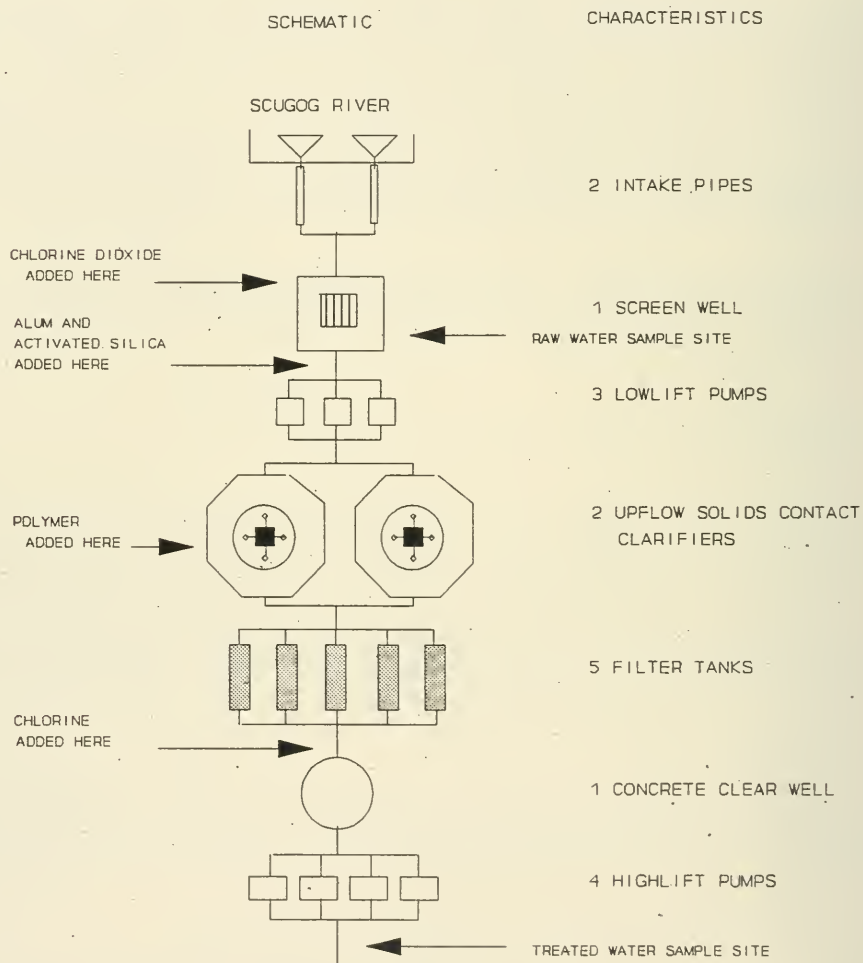


TABLE 1
DRINKING WATER SURVEILLANCE PROGRAM
PLANT GENERAL REPORT

PLANT NAME: LINDSAY WTP
WORKS #: 220000175
UTM #: 176811604912760

DISTRICT: PETERBOROUGH
REGION: CENTRAL
DISTRICT OFFICER: J. BOURQUE

SUPERINTENDENT: E. HEWITT

ADDRESS: 50 WOLFE ST. P.O. BOX 180
LINDSAY, ONTARIO
K9B 4S1
705-878-5411

MUNICIPALITY: LINDSAY
AUTHORITY: MUNICIPAL

PLANT INFORMATION

PLANT VOLUME:	-	(X 1000 M3)
DESIGN CAPACITY:	22.727	(X 1000 M3/DAY)
RATED CAPACITY:	-	(X 1000 M3/DAY)

MUNICIPALITY	POPULATION
-----	-----
LINDSAY	15,000

TABLE 2
DRINKING WATER SURVEILLANCE PROGRAM
IN-PLANT MONITORING

PARAMETER -----	LOCATION -----	FREQUENCY -----
FREE CHLORINE RESIDUAL	TREATED	HOURLY
TOTAL CHLORINE RESIDUAL	TREATED	CONTINUOUS
PH	RAW TREATED	DAILY DAILY
TEMPERATURE	RAW	CONTINUOUS
TURBIDITY	RAW TREATED	DAILY CONTINUOUS

TABLE 3
DRINKING WATER SURVEILLANCE PROGRAM LINDSAY WTP SAMPLE DAY CONDITIONS
AND TREATMENT CHEMICAL DOSAGES FOR 1991 AND 1992

DATE	DELAY * TIME(HRS)	FLOW (1000G3)	COAGULATION ALUM LIQUID	POLYELECTROLYTE	COAGULATION A10 SODIUM SILICATE	POST CHLORINATION CHLORINE	PRE CHLORINATION SODIUM CHLORITE	ACTIVATION CHLORINE
91 JAN 29	3.00	13.000	100.00	.80	8.00	2.10	.	3.10
91 FEB 26	.35	13.000	100.00	.80	8.00	2.40	.	.
91 MAR 26	4.00	7.500	61.00	.80	8.00	1.60	.	3.10
91 APR 30	3.30	13.000	80.00	.80	8.00	1.70	.	3.10
91 MAY 28	3.00	13.000	100.00	.80	8.00	2.90	.	3.10
91 JUN 25	3.50	13.000	90.00	.80	8.00	3.50	.	3.10
91 SEP 10	3.00	13.000	100.00	.60	8.00	3.20	.	3.10
91 OCT 29	5.00	8.000	100.00	.80	8.00	2.40	.	3.10
91 DEC 03	5.00	7.500	100.00	.60	8.00	2.30	.	3.10
92 FEB 25	5.00	7.100	100.00	.60	8.00	2.40	.60	3.10
92 MAY 26	3.50	7.500	100.00	.60	8.40	4.30	.60	3.10
92 JUL 28	3.00	13.000	100.00	.60	8.00	3.90	.60	3.10
92 OCT 27	4.00	7.500	100.00	.60	8.00	3.60	.	3.10
92 DEC 01	4.00	7.300	100.00	.60	8.00	2.50	.	3.10

* THE DELAY TIME BETWEEN THE RAW AND TREATED WATER SAMPLING, SHOULD ESTIMATE THE RETENTION TIME.

KEY TO TABLE 4 and 5

- A ONTARIO DRINKING WATER OBJECTIVES (ODWO)
1. Maximum Acceptable Concentration (MAC)
 - 1+. MAC for Total Trihalomethanes
 2. Interim Maximum Acceptable Concentration (IMAC)
 3. Aesthetic Objective (AO)
 - 3*. AO for Total Xylenes
 4. Recommended Operational Guideline
 5. Health Related Guidance Value
- B HEALTH & WELFARE CANADA (H&W)
1. Maximum Acceptable Concentration (MAC)
 2. Proposed MAC
 3. Interim MAC
 4. Aesthetic Objective (AO)
- C WORLD HEALTH ORGANIZATION (WHO)
1. Guideline Value (GV)
 2. Tentative GV
 3. Aesthetic GV
- D US ENVIRONMENTAL PROTECTION AGENCY (EPA)
1. Maximum Contaminant Level (MCL)
 2. Suggested No-Adverse Effect Level (SNAEL)
 3. Lifetime Health Advisory
 4. EPA Ambient Water Quality Criteria
- F EUROPEAN ECONOMIC COMMUNITY (EEC)
1. Health Related Guideline Level
 2. Aesthetic Guideline Level
 3. Maximum Admissable Concentration (MADC)
- G CALIFORNIA STATE DEPARTMENT OF HEALTH-GUIDELINE VALUE
- I NEW YORK STATE AMBIENT WATER GUIDELINE
- N/A NONE AVAILABLE

LABORATORY RESULTS, REMARK DESCRIPTIONS

. No Sample Taken

BDL Below Minimum Measurement Amount

<T Greater Than Detection Limit But Not Confident
(SEE INTERPRETATION OF RESULTS ABOVE)

> Results Are Greater Than The Upper Limit

<=> Approximate Result

!48 No Data: Sample Age Exceeded 48 Hours

!AR No Data: No Numeric Results

!AW No Data: Analysis Withdrawn

!BT No Data: Sample Broken In Transit

!CS No Data: Contamination Suspected

!EF No Data: Laboratory Equipment Failure

!IR No Data: Insufficient Sample

!IS No Data: Insufficient Sample

!LA No Data: Laboratory Accident

!NP No Data: No Procedure

!NR No Data: Sample Not Received

!OP No Data: Obscured Plate

!PE No Data: Procedure Error: Sample Discarded

!PR No Data: Preservative Required

!QU No Data: Quality Control Unacceptable

!RE No Data: Received Empty

!RO No Data: No Numeric Results

!SM No Data: Sample Missing

!SS No Data: Sample Improperly Preserved

!U No Data: Sample Unsuitable For Analysis

!UB No Data: Bottle Broken

!UN No Data: Result Unreliable

!UR	No Data: Unpreserved Sample Required
A	Approximate Value
A3C	Approximate, Total Count Exceeded 300 Colonies
A>	Approximate Value, Exceeded Normal Range
APS	Additional Peak, Less Than, Not Priority Pollutant
ARO	Additional Information In Laboratory Report
CRO	Calculated Result Only
NAF	Not All Required Tests Found
RID	Ioncal Calculated on Incomplete Data Set
RMP	P and M-Xylene Not Separated
RRR	Result Obtained by Repeat Analysis
RRV	Rerun Verification
SFA	Sample Filtered: Filtrate Analyzed
SIL	Sample Incorrectly Labelled
SPS	Several Peaks, Small, Not Priority Pollutant
U48	Unreliable: Sample Age Exceeded 48 Hours
UAL	Unreliable: Sample Age Exceeded Limit
UAU	Unreliable: Sample Age Unknown
UCS	Unreliable: Contamination Suspected
WSD	Wrong Sample Description On Bottle

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT FREE FLOW	DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
BACTERIOLOGICAL					
FECAL COLIFORM MF (CT/100ML)		DET'N LIMIT = 0		GUIDELINE = 0 (A1)	
1991 JAN	6				
1991 FEB	12				
1991 MAR	16				
1991 APR	6				
1991 MAY	20 A3C				
1991 JUN	34				
1991 SEP	36 A3C				
1991 OCT	16				
1991 DEC	4				
1992 FEB	64				
1992 MAY	56 A3C				
1992 JUL	28				
1992 OCT	44				
1992 NOV	10 <=>				
STANDARD PLATE CNT MF (CT/ML)					
		DET'N LIMIT = 0		GUIDELINE = 500 (A3)	
1991 JAN	0 <=>	1 <=>		0 <=>	
1991 FEB	1 <=>	0 <=>		6 <=>	
1991 MAR	1 <=>	1 <=>		11	
1991 APR	5 <=>	0 <=>			
1991 MAY	144	530		44	
1991 JUN	370	480		370	
1991 SEP	0 <=>	6 <=>		2400 >	
1991 OCT	28	2 <=>		26	
1991 DEC	2 <=>	0 <=>		1 <=>	
1992 FEB	13	4 <=>			
1992 MAY	0 <=>			1400	
1992 JUL	6 <=>	820			
1992 OCT	2 <=>	8 <=>			
1992 NOV	0 <=>				
1992 DEC		6 <=>			

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT FREE FLOW	DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
BACTERIOLOGICAL					
TOTAL COLIFORM MF (CT/100ML)		DET'N LIMIT = 0			
		GUIDELINE = 5/100ML (A1)			
1991 JAN	160 <=>				
1991 FEB	740 A3C				
1991 MAR	610 A3C				
1991 APR	80 <=>				
1991 MAY	300 <=>				
1991 JUN	200 <=>				
1991 SEP	40 <=>				
1991 OCT	BDL				
1991 DEC	220				
1992 FEB	7100 A3C				
1992 MAY	140 <=>				
1992 JUL	80 <=>				
1992 OCT	400 A3C				
1992 NOV	560				
T COLIFORM BCKGRD MF (CT/100ML)		DET'N LIMIT = 0			
		GUIDELINE = N/A			
1991 JAN	620				
1991 FEB	3500 A3C				
1991 MAR	5300 A3C				
1991 APR	9700 A3C				
1991 MAY	36000 A3C				
1991 JUN	80000 A3C				
1991 SEP	24000 >				
1991 OCT	31000 A3C				
1991 DEC	2600				
1992 FEB	40000 >				
1992 MAY	48000 >				
1992 JUL	48000 >				
1992 OCT	12400 A3C				
1992 NOV	2020				

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT FREE FLOW	DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
CHEMISTRY (FIELD)					
FLO CHLORINE (COMB) (MG/L)		DET'N LIMIT = 0		GUIDELINE = N/A	
1991 JAN	.300	.400	.400	.400	.100
1991 FEB	.800	.300	.200	.200	.100
1991 MAR	.400	.200	.300	.300	.100
1991 APR	.200	.300	.300	.300	.100
1991 MAY	.400	.200	.100	.100	.100
1991 JUN	.400	.200	.100	.100	.050
1991 SEP	.800	.300	.200	.200	.100
1991 OCT	.200	.300	.300	.100	.100
1991 DEC	.400	.600	.600	.200	.100
1992 FEB	.200	.300	.200	.300	.200
1992 MAY	.400	.300	.100	.100	.
1992 JUL	.800	.200	.100	.	.
1992 OCT	.600	.	.	.	.
1992 NOV	.500	.	.	.	.
1992 DEC	.	.300	.200	.	.
FLO CHLORINE FREE (MG/L)					
		DET'N LIMIT = 0		GUIDELINE = N/A	
1991 JAN	1.600	.700	.000	.100	.000
1991 FEB	.900	.200	.100	.100	.000
1991 MAR	1.500	.700	.100	.100	.000
1991 APR	1.500	.200	.100	.100	.000
1991 MAY	.700	.300	.000	.100	.000
1991 JUN	1.300	.200	.000	.000	.000
1991 SEP	1.100	.200	.000	.100	.000
1991 OCT	1.500	.200	.100	.100	.000
1991 DEC	1.300	.700	.000	.200	.100
1992 FEB	1.500	.500	.200	.	.
1992 MAY	1.500	.000	.000	.100	.100
1992 JUL	1.100	.100	.100	.	.
1992 OCT	1.500	.100	.100	.	.
1992 NOV	1.000	.	.	.	.
1992 DEC	.	.200	.100	.	.

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT FREE FLOW	DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
CHEMISTRY (FIELD)					
FLD CHLORINE (TOTAL) (MG/L)		DET'N LIMIT = 0		GUIDELINE = N/A	
1991 JAN	1.900	1.100	.400	.500	.100
1991 FEB	1.700	.500	.300	.300	.100
1991 MAR	1.900	.900	.400	.400	.100
1991 APR	1.700	.500	.400	.200	.100
1991 MAY	1.100	.500	.100	.100	.050
1991 JUN	1.700	.400	.100	.100	.100
1991 JUL	1.900	.500	.000	.300	.100
1991 SEP	1.900	.500	.400	.200	.100
1991 OCT	1.700	1.300	.600	.400	.200
1991 DEC	1.700	.800	.400	.400	.300
1992 FEB	1.900	.300	.100	.400	.300
1992 MAY	1.900	.300	.100	.400	.300
1992 JUL	2.100	.300	.200	.400	.300
1992 OCT	1.500	.500	.400	.400	.300
1992 NOV					
1992 DEC					
FLD PH (DMNSLESS)					
		DET'N LIMIT = N/A		GUIDELINE = 6.5-8.5 (A4)	
1991 JAN	7.700	6.800	6.800	6.900	7.000
1991 FEB	7.500	6.800	6.800	6.800	6.900
1991 MAR	7.600	6.900	6.800	7.000	7.200
1991 APR	7.800	6.800	6.800	6.800	6.900
1991 MAY	7.500	6.800	6.800	6.800	7.000
1991 JUN	7.500	6.800	6.800	6.800	6.800
1991 SEP	7.600	6.800	6.900	7.500	7.600
1991 OCT	7.600	7.300	7.300	7.400	7.400
1991 DEC	7.700	7.200	7.500	7.400	7.400
1992 FEB	7.300	7.200	7.400	7.200	7.400
1992 MAY	7.500	7.100	7.400	7.400	7.400
1992 JUL	7.500	7.000	7.500	7.400	7.400
1992 OCT	7.500	7.400	7.500	7.400	7.400
1992 NOV	7.500	7.200	7.400	7.400	7.400
1992 DEC					

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	CHEMISTRY (FIELD)		DIST. SYSTEM BIRCH CT FREE FLOW	DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
		TEMPERATURE (DEG.C)	TURBIDITY (FTU)				
GUIDELINE = 15 (A3)							
1991 JAN	1,300	1,000	4,000	19,000	6,000	20,000	20,000
1991 FEB	1,000	1,500	3,500	17,500	8,000	19,000	19,000
1991 MAR	3,000	2,000	5,000	17,000	5,000	20,000	20,000
1991 APR	14,500	14,000	8,000	17,000	-	22,000	22,000
1991 MAY	23,000	22,500	13,000	18,000	17,000	20,000	20,000
1991 JUN	23,000	23,000	18,000	18,500	19,000	22,000	22,000
1991 SEP	22,000	22,000	18,000	21,000	15,000	21,000	21,000
1991 OCT	13,500	13,500	15,000	19,500	11,000	19,000	19,000
1991 DEC	5,000	4,500	12,000	20,000	-	21,000	21,000
1992 FEB	3,500	5,000	9,000	-	14,500	-	-
1992 MAY	18,500	19,000	12,500	19,000	-	-	-
1992 JUL	23,000	22,000	13,000	19,000	-	-	-
1992 OCT	7,000	7,500	10,000	18,000	-	-	-
1992 NOV	4,000	4,000	-	-	-	-	-
1992 DEC	-	-	-	-	-	-	-
GUIDELINE = 1.0 (A1)							
1991 JAN	5,800	.320	1,310	.560	7,600	1,350	1,350
1991 FEB	1,800	.500	.820	.610	.800	1,170	1,170
1991 MAR	2,550	.220	.440	.310	.490	1,630	1,630
1991 APR	5,620	.170	.220	.360	-	.980	.980
1991 MAY	8,200	.300	.380	.500	.630	1,180	1,180
1991 JUN	11,760	.500	.510	.610	.980	1,490	1,490
1991 SEP	8,500	.160	.610	.830	.840	.370	.370
1991 OCT	5,100	.260	.470	.330	.510	.210	.210
1991 DEC	2,770	.080	.240	.470	.300	-	-
1992 FEB	2,870	.300	.480	.720	.800	.800	.800
1992 MAY	5,310	.520	-	.640	-	-	-
1992 JUL	5,180	.500	.760	1,130	-	-	-
1992 OCT	3,400	.520	.860	-	-	-	-
1992 NOV	8,300	.250	-	.620	-	-	-
1992 DEC	-	-	.490	-	-	-	-

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT FREE FLOW	DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
CHEMISTRY (LABORATORY)					
ALKALINITY (MG/L)		DET'N LIMIT = 0.2		GUIDELINE = 30-500 (A4)	
1991 JAN	161.200	106.200	111.100	112.200	109.500
1991 FEB	171.100	122.900	114.500	115.800	118.300
1991 MAR	179.800	131.800	136.400	141.200	136.300
1991 APR	153.700	98.300	103.700	102.500	.
1991 MAY	145.000	86.900	89.500	94.100	91.100
1991 JUN	155.300	103.800	106.200	106.600	105.400
1991 SEP	129.600	65.500	71.308	69.800	68.500
1991 OCT	147.300	131.400	128.400	131.100	130.300
1991 DEC	174.500	146.500	149.900	150.900	149.700
1992 FEB	153.000	138.500	141.500	142.100	141.700
1992 MAY	173.500	141.400	128.700	.	.
1992 JUL	138.700	112.600	184.100	.	.
1992 OCT	224.900	199.400	.	.	.
1992 NOV	159.900	133.700	144.900	.	.
1992 DEC	.	.	.	.	.
CALCIUM (MG/L)		DET'N LIMIT = 0.20		GUIDELINE = 100 (F2)	
1991 JAN	63.300	61.700	62.800	61.900	64.100
1991 FEB	69.500	66.800	67.600	65.400	67.800
1991 MAR	71.000	69.300	72.600	70.600	72.400
1991 APR	58.500	59.200	60.100	61.200	.
1991 MAY	53.200	53.000	56.200	55.000	53.600
1991 JUN	55.600	56.600	56.000	55.400	56.600
1991 SEP	41.400	43.400	44.300	44.800	44.500
1991 OCT	50.700	49.500	50.900	51.700	51.800
1991 DEC	65.300	63.300	64.500	59.600	64.800
1992 FEB	55.300	55.400	55.800	69.100	.
1992 MAY	67.000	69.700	53.100	69.100	69.000
1992 JUL	50.300	51.100	81.900	.	.
1992 OCT	88.800	88.400	.	.	.
1992 NOV	63.200	60.700	65.600	.	.
1992 DEC	.	.	.	.	.
CYANIDE (MG/L)		DET'N LIMIT = 0.001		GUIDELINE = 0.2 (A1)	
22 SAMPLES	BOL	BOL	.	.	.

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	CHEMISTRY (LABORATORY)				DIST. SYSTEM				DIST. SYSTEM			
		CHLORIDE (MG/L)	DET'N LIMIT = 0.20	DET'N LIMIT = 0.50	DET'N LIMIT = 250 (A3)	BIRCH CT FREE FLOW	BIRCH CT STANDING	VICTORIA AVE FREE FLOW	VICTORIA AVE STANDING	BIRCH CT FREE FLOW	BIRCH CT STANDING	VICTORIA AVE FREE FLOW	VICTORIA AVE STANDING
1991 JAN	21,000	24,900	24,600	24,800	24,600	24,600	25,400	24,600	25,400	24,600	25,400	24,600	25,400
1991 FEB	20,300	23,700	23,500	23,900	23,800	23,900	24,000	23,800	24,000	23,800	24,000	23,800	24,000
1991 MAR	18,400	24,200	23,500	23,600	21,900	21,900	22,700	21,900	22,700	21,900	22,700	21,900	22,700
1991 APR	16,900	20,700	20,000	20,600	20,600	20,600	22,600	22,500	22,600	22,500	22,600	22,500	22,600
1991 MAY	18,100	22,100	22,500	22,400	22,400	22,400	24,100	22,400	23,300	22,400	23,300	22,400	23,300
1991 JUN	19,600	22,800	23,600	23,400	23,400	23,400	23,800	22,700	23,800	22,700	23,800	22,700	23,800
1991 SEP	19,000	23,500	23,100	24,400	23,600	23,600	23,600	23,400	23,600	23,400	23,600	23,400	23,600
1991 OCT	18,500	23,100	23,400	23,600	27,400	27,400	26,900	27,700	26,900	27,700	26,900	27,700	26,900
1991 DEC	22,200	26,300	26,900	33,500	33,500	33,500	25,700	25,700	25,700	25,700	25,700	25,700	25,700
1992 FEB	26,700	32,400	33,000	26,000	26,000	26,000	28,100	28,100	28,100	28,100	28,100	28,100	28,100
1992 MAY	20,000	26,000	25,600	28,000	28,000	28,000	24,200	24,200	24,200	24,200	24,200	24,200	24,200
1992 JUL	20,100	24,600	28,000	28,000	28,000	28,000	24,200	24,200	24,200	24,200	24,200	24,200	24,200
1992 OCT	23,500	27,300	28,000	28,000	28,000	28,000	24,200	24,200	24,200	24,200	24,200	24,200	24,200
1992 NOV	19,500	23,700	24,200	24,200	24,200	24,200	24,200	24,200	24,200	24,200	24,200	24,200	24,200
1992 DEC													
COLOUR (HZU)													
1991 JAN	17,000	3,000	3,500	4,000	4,000	4,000	8,500	7,000	8,500	7,000	8,500	7,000	8,500
1991 FEB	24,000	3,000	5,500	5,500	5,500	5,500	6,500	9,500	6,500	9,500	6,500	9,500	6,500
1991 MAR	33,500	4,000	3,500	3,500	3,500	3,500	8,000	7,500	8,000	7,500	8,000	7,500	8,000
1991 APR	25,000	2,500	3,500	4,000	4,000	4,000	8,000	6,000	8,000	6,000	8,000	6,000	8,000
1991 MAY	23,500	3,000	3,500	4,000	4,000	4,000	10,500	10,000	10,500	10,000	10,500	10,000	10,500
1991 JUN	33,500	5,000	6,500	7,000	7,000	7,000	12,000	8,000	12,000	8,000	12,000	8,000	12,000
1991 SEP	23,000	2,500	3,000	3,500	3,500	3,500	4,000	3,500	4,000	3,500	4,000	3,500	4,000
1991 OCT	19,000	3,500	3,500	3,500	3,500	3,500	3,500	6,000	3,500	6,000	3,500	6,000	3,500
1991 DEC	19,500	3,000	3,000	3,000	3,000	3,000	6,500	6,500	6,500	6,500	6,500	6,500	6,500
1992 FEB	13,000	2,000	2,500	2,500	2,500	2,500	5,000	5,000	5,000	5,000	5,000	5,000	5,000
1992 MAY	38,500	5,000	5,000	5,000	5,000	5,000	9,000	9,000	9,000	9,000	9,000	9,000	9,000
1992 JUL	28,000	5,000	8,000	8,000	8,000	8,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
1992 OCT	45,000	3,000	4,000	4,000	4,000	4,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
1992 NOV	23,000	3,000	4,000	4,000	4,000	4,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
1992 DEC													

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	CHEMISTRY (LABORATORY)				DIST. SYSTEM				DIST. SYSTEM		DIST. SYSTEM VICTORIA AVE STANDING
		CONDUCTIVITY (UMHO/CM.)	DET'N LIMIT = 1.0	GUIDELINE = 400 (F2)	DET'N LIMIT = 1.0	BIRCH CT FREE FLOW	BIRCH CT STANDING	VICTORIA AVE FREE FLOW	VICTORIA AVE STANDING			
1991 JAN	397	424	422	426	426	420	420	420	427			
1991 FEB	412	430	427	430	430	428	428	428	436			
1991 MAR	421	447	447	449	449	436	436	436	452			
1991 APR	351	383	379	387	387	366	366	366	365			
1991 MAY	339	362	365	364	364	400	400	400	399			
1991 JUN	397	397	399	398	398	362	362	362	366			
1991 SEP	332	365	361	368	368	440	440	440	445			
1991 OCT	367	444	442	448	448	514	514	514	515			
1991 DEC	443	510	515	520	520	483	483	483	483			
1992 FEB	414	507	509	515	515	449	449	449	449			
1992 MAY	415	486	449	449	449	543	543	543	543			
1992 JUL	353	413	548	548	548	495	495	495	495			
1992 OCT	498	568	482	482	482							
1992 NOV	388											
1992 DEC												
DISS ORG CARBON (MG/L)												
			DET'N LIMIT = 0.10	GUIDELINE = 5.0 (A3)	DET'N LIMIT = 0.10	GUIDELINE = 5.0 (A3)	DET'N LIMIT = 0.10	GUIDELINE = 5.0 (A3)	DET'N LIMIT = 0.10	GUIDELINE = 5.0 (A3)	DET'N LIMIT = 0.10	GUIDELINE = 5.0 (A3)
1991 JAN	10.400	5.100	5.500	5.400	5.400	5.800	5.800	5.800	5.500			
1991 FEB	9.500	4.900	4.900	4.800	4.800	4.400	4.400	4.400	4.800			
1991 MAR	8.200	4.300	4.400	4.400	4.400	5.000	5.000	5.000	5.500			
1991 APR	8.100	3.900	4.900	4.800	4.800	4.300	4.300	4.300	4.000			
1991 MAY	8.200	4.200	4.500	4.500	4.500	5.800	5.800	5.800	6.100			
1991 JUN	11.900	6.300	6.500	6.200	6.200	4.400	4.400	4.400	4.000			
1991 SEP	9.700	4.400	4.500	4.800	4.800	3.300	3.300	3.300	3.700			
1991 OCT	7.700	4.200	4.200	4.200	4.200	6.100	6.100	6.100	6.100			
1991 DEC	6.500	3.400	3.400	3.600	3.600	6.000	6.000	6.000	6.000			
1992 FEB	10.500	6.100	6.400	6.400	6.400	6.700	6.700	6.700	6.700			
1992 MAY	11.100	6.100	6.300	6.300	6.300	5.000	5.000	5.000	5.000			
1992 JUL	10.700	6.400	6.800	6.800	6.800	4.600	4.600	4.600	4.600			
1992 OCT	11.500	6.700	6.800	6.800	6.800							
1992 NOV	11.500	6.700	6.800	6.800	6.800							
1992 DEC	10.700	5.000	4.600	5.100	5.100							

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	CHEMISTRY (LABORATORY)				DIST. SYSTEM				DIST. SYSTEM			
		FLUORIDE (MG/L)	DET'N LIMIT = 0.01	GUIDELINE = 1.5 (A1)	STANDING	BIRCH CT	FREE FLOW	VICTORIA AVE	STANDING	BIRCH CT	FREE FLOW	VICTORIA AVE	STANDING
1991 JAN	.060	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T
1991 FEB	.060	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T
1991 MAR	.080	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T
1991 APR	.060	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T
1991 MAY	.060	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T
1991 JUN	.060	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T
1991 SEP	.080	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T
1991 OCT	.060	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T
1991 DEC	.060	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T
1992 FEB	.060	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T
1992 MAY	.080	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T	.040 <T
1992 JUL	.100	.080	.080	.080	.080	.080	.080	.080	.080	.080	.080	.080	.080
1992 OCT	.060	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T
1992 NOV	.060	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T	.020 <T
1992 DEC													
HARDNESS (MG/L)		DET'N LIMIT = 0.5				GUIDELINE = 80-100 (A4)							
1991 JAN	193.700	188.900	192.400	192.400	192.400	192.400	192.400	192.400	192.400	192.400	192.400	192.400	192.400
1991 FEB	206.000	198.700	206.000	206.000	206.000	206.000	206.000	206.000	206.000	206.000	206.000	206.000	206.000
1991 MAR	205.500	201.600	206.000	206.000	206.000	206.000	206.000	206.000	206.000	206.000	206.000	206.000	206.000
1991 APR	168.500	171.000	176.200	176.200	176.200	176.200	176.200	176.200	176.200	176.200	176.200	176.200	176.200
1991 MAY	166.000	164.000	171.000	171.000	171.000	171.000	171.000	171.000	171.000	171.000	171.000	171.000	171.000
1991 JUN	174.000	175.000	174.000	174.000	174.000	174.000	174.000	174.000	174.000	174.000	174.000	174.000	174.000
1991 SEP	147.900	151.800	153.200	153.200	153.200	153.200	153.200	153.200	153.200	153.200	153.200	153.200	153.200
1991 OCT	172.900	171.400	172.600	172.600	172.600	172.600	172.600	172.600	172.600	172.600	172.600	172.600	172.600
1991 DEC	215.800	208.300	213.100	213.100	213.100	213.100	213.100	213.100	213.100	213.100	213.100	213.100	213.100
1992 FEB	177.000	176.000	177.000	177.000	177.000	177.000	177.000	177.000	177.000	177.000	177.000	177.000	177.000
1992 MAY	201.000	208.000	208.000	208.000	208.000	208.000	208.000	208.000	208.000	208.000	208.000	208.000	208.000
1992 JUL	165.000	168.000	172.300	172.300	172.300	172.300	172.300	172.300	172.300	172.300	172.300	172.300	172.300
1992 OCT	263.000	262.000	250.000	250.000	250.000	250.000	250.000	250.000	250.000	250.000	250.000	250.000	250.000
1992 NOV	190.200	184.250	192.820	192.820	192.820	192.820	192.820	192.820	192.820	192.820	192.820	192.820	192.820
1992 DEC													

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT FREE FLOW	DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
CHEMISTRY (LABORATORY)					
IONCAL (DMNSLESS)		DET'N LIMIT = N/A	GUIDELINE = N/A		
1991 JAN	3.617 NAF	1.022 NAF	2.066 NAF	.623 NAF	3.138 NAF
1991 FEB	3.013	.006	1.468	1.079	3.004
1991 MAR	4.172	3.076	1.184	1.675	1.645
1991 APR	2.889 NAF	2.544 NAF	1.581 NAF	1.045 NAF	.996 NAF
1991 MAY	1.458 NAF	2.967 NAF	3.571 NAF	2.027 NAF	.597
1991 JUN	.773	.110	.974	2.288	2.998 NAF
1991 SEP	3.654 NAF	2.296 NAF	3.874 NAF	2.401 NAF	.442
1991 OCT	.673	.216	.001	.173	1.348
1991 DEC	2.218	.465	1.189	4.194	
1992 FEB	1.379	1.316	1.499		2.932
1992 MAY	1.092	3.596		3.143	
1992 JUL	3.242 NAF	4.536 NAF	4.163 NAF		
1992 OCT	1.547	.597	1.072		
1992 NOV	1.972	2.354			
1992 DEC			.637		
POTASSIUM (MG/L)		DET'N LIMIT = 0.01	GUIDELINE = 10 (F2)		
1991 JAN	2.430	2.450	2.550	2.460	2.550
1991 FEB	2.550	2.470	2.500	2.410	2.450
1991 MAR	1.600	1.540	1.600	1.500	1.550
1991 APR	1.820	1.880	1.900	1.940	
1991 MAY	1.750	1.750	1.800	1.700	1.750
1991 JUN	1.750	1.750	1.450	1.450	1.450
1991 SEP	1.710	1.750	1.210	1.820	1.830
1991 OCT	1.840	1.880	1.850	1.850	1.880
1991 DEC	1.840	1.780	1.860	1.840	1.920
1992 FEB	2.660	2.640	2.710		
1992 MAY	1.930	1.950		1.930	1.980
1992 JUL	1.160	1.490	1.540		
1992 OCT	2.250	2.256	2.332		
1992 NOV	2.003	1.987			
1992 DEC			2.201		

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT FREE FLOW	DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING	CHEMISTRY (LABORATORY)			
						LANGELIERS INDEX (OMNLESS)		MAGNESIUM (MG/L)	
		DET'N LIMIT = N/A		GUIDELINE = N/A		DET'N LIMIT = 0.1		GUIDELINE = 30.0 (F2)	
1991 JAN	.868 NAF	.303 NAF	.262 NAF	.280 NAF	.309 NAF	.263 NAF	.309 NAF	.263 NAF	.309 NAF
1991 FEB	.883	.300	.220	.395	.325	.400	.325	.400	.400
1991 MAR	.883	.305	.024	.263	.334	.298	.334	.298	.298
1991 APR	.718	.075	.135	.042	.124	.139	.124	.139	.139
1991 MAY	.582	.314	.135	.112	.105	.105	.105	.105	.105
1991 JUN	.778	.032	.047	.027	.000	.000	.000	.000	.000
1991 SEP	.395	.204	.188	.274	.132	.524	.132	.524	.524
1991 OCT	.695	.588	.518	.609	.555	.814	.555	.814	.814
1991 DEC	.991	.765	.791	.861	.852	.814	.852	.814	.814
1992 FEB	.875	.733	.766	.795	.795	.521	.795	.521	.521
1992 MAY	.803	.444	.444	.489 NAF	.493	.521	.493	.521	.521
1992 JUL	.587 NAF	.218 NAF	.495 NAF	.489 NAF	.489 NAF	.521	.489 NAF	.521	.521
1992 OCT	1.150	.879	.818	.813	.813	.521	.813	.521	.521
1992 NOV	.885	.630	.756	.777	.777	.521	.777	.521	.521
1992 DEC	.	.	.	.	.	.521	.	.521	.521
MAGNESIUM (MG/L)									
		DET'N LIMIT = 0.1		GUIDELINE = 30.0 (F2)		DET'N LIMIT = 0.1		GUIDELINE = 30.0 (F2)	
1991 JAN	8.650	8.450	8.550	8.650	8.600	8.550	8.600	8.550	8.550
1991 FEB	7.900	7.750	.	7.750	9.050	8.450	9.050	8.450	8.450
1991 MAR	6.850	6.900	7.100	7.000	6.800	7.000	6.800	7.000	7.000
1991 APR	5.500	5.600	6.350	5.550	.	.	.	.	.
1991 MAY	7.900	7.700	7.500	7.400	7.600	7.700	7.600	7.700	7.700
1991 JUN	8.500	8.200	8.300	8.200	8.400	8.800	8.400	8.800	8.800
1991 JUL	10.800	10.500	10.300	10.450	10.100	10.200	10.100	10.200	10.200
1991 OCT	11.250	11.600	11.150	11.200	11.450	11.550	11.450	11.550	11.550
1991 DEC	12.850	12.200	12.650	12.350	12.400	12.600	12.400	12.600	12.600
1992 FEB	9.480	9.180	9.240	9.360	.	.	.	.	.
1992 MAY	8.130	8.220	.	9.630	8.050	8.140	8.050	8.140	8.140
1992 JUL	9.610	9.770	9.410	9.630	.	.	.	.	.
1992 OCT	10.030	9.960	9.980	9.920	.	.	.	.	.
1992 NOV	7.870	7.940	.	8.100	.	.	.	.	.
1992 DEC	.	.	8.020	.	.	.	.	.	.

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	CHEMISTRY (LABORATORY)				DIST. SYSTEM				DIST. SYSTEM			
		SODIUM (MG/L)				BIRCH CT				VICTORIA AVE			
		DET'N LIMIT = 0.20				STANDING				FREE FLOW			
		GUIDELINE = 200 (A4)											
1991 JAN	10.700	11.700	11.100	11.400	11.300	11.500	11.500	11.500	11.500	11.500	11.500	11.500	11.500
1991 FEB	9.200	9.200	9.200	9.600	9.500	9.500	9.500	9.500	9.500	9.500	9.500	9.500	9.500
1991 MAR	8.700	10.000	9.200	10.200	9.000	9.400	9.400	9.400	9.400	9.400	9.400	9.400	9.400
1991 APR	7.900	9.700	9.300	9.500	9.400	9.400	9.400	9.400	9.400	9.400	9.400	9.400	9.400
1991 MAY	9.200	10.400	10.200	10.400	10.600	10.600	10.600	10.600	10.600	10.600	10.600	10.600	10.600
1991 JUN	9.600	9.800	10.200	10.200	10.200	10.200	10.200	10.200	10.200	10.200	10.200	10.200	10.200
1991 JUL	9.100	10.400	10.200	10.300	10.600	10.600	10.600	10.600	10.600	10.600	10.600	10.600	10.600
1991 SEP	9.200	26.100	26.000	27.000	23.600	23.600	23.600	23.600	23.600	23.600	23.600	23.600	23.600
1991 OCT	9.200	26.100	26.000	27.000	23.600	23.600	23.600	23.600	23.600	23.600	23.600	23.600	23.600
1991 DEC	11.000	24.400	25.400	26.800	26.800	26.800	26.800	26.800	26.800	26.800	26.800	26.800	26.800
1992 FEB	13.600	33.900	33.500	35.000	35.000	35.000	35.000	35.000	35.000	35.000	35.000	35.000	35.000
1992 MAY	10.000	25.000	20.700	20.800	20.800	20.800	20.800	20.800	20.800	20.800	20.800	20.800	20.800
1992 JUL	9.680	20.300	23.800	23.800	23.800	23.800	23.800	23.800	23.800	23.800	23.800	23.800	23.800
1992 OCT	10.290	24.600	23.800	23.800	23.800	23.800	23.800	23.800	23.800	23.800	23.800	23.800	23.800
1992 NOV	9.480	26.600	26.600	26.800	26.800	26.800	26.800	26.800	26.800	26.800	26.800	26.800	26.800
1992 DEC													
AMMONIUM TOTAL (MG/L)		DET'N LIMIT = 0.002				GUIDELINE = 0.05 (F2)							
1991 JAN	.120	.004 <T	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 FEB	.102	.004 <T	.008 <T	.012	.012	.020	.020	.012	.012	.012	.022	.022	.022
1991 MAR	.024	.006 <T	.018	.024	.010	.010	.010	.010	.010	.010	.010	.010	.010
1991 APR	.026	.002 <T	.010	.010	.010	.010	.010	.010	.010	.010	.010	.010	.010
1991 MAY	.166	.006 <T	.010	.010	.010	.010	.010	.010	.010	.010	.010	.010	.010
1991 JUN	.094	.014	.010	.010	.010	.010	.010	.010	.010	.010	.010	.010	.010
1991 SEP	.022	.010	.008 <T	.010	.010	.010	.010	.010	.010	.010	.010	.010	.010
1991 OCT	.040	.006 <T	.006 <T	.010	.010	.010	.010	.010	.010	.010	.010	.010	.010
1991 DEC	.032	.004 <T	.004 <T	.014	.014	.014	.014	.014	.014	.014	.014	.014	.014
1992 FEB	.306	.008 <T	.012	.018	.018	.018	.018	.018	.018	.018	.018	.018	.018
1992 MAY	.096	.008 <T	.016	.024	.024	.024	.024	.024	.024	.024	.024	.024	.024
1992 JUL	.072	.012	.014	.014	.014	.014	.014	.014	.014	.014	.014	.014	.014
1992 OCT	.024	.008 <T	.008 <T	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016
1992 NOV	.042												
1992 DEC													

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	CHEMISTRY (LABORATORY)				DIST. SYSTEM BIRCH CT FREE FLOW	DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
		NITRITE (MG/L)	DET'N LIMIT = 0.001		GUIDELINE = 1.0 (A1)				
1991 JAN	.006	BOL	BOL	BOL	.001 <T	BOL	BOL	.001 <T	BOL
1991 FEB	.008	BOL	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T
1991 MAR	.008	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T	.002 <T
1991 APR	.009	BOL	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T	.003 <T
1991 MAY	.008	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T	.002 <T
1991 JUN	.004 <T	.003 <T	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T	.003 <T
1991 JUL	.004 <T	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T	.003 <T
1991 SEP	.007	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T	.004 <T
1991 OCT	.009	BOL	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T	BOL
1991 DEC	.009	BOL	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T	BOL
1992 FEB	.013	.002 <T	.002 <T	.002 <T	.002 <T	.002 <T	.002 <T	.002 <T	.003 <T
1992 MAY	.004 <T	.002 <T	.002 <T	.002 <T	.002 <T	.002 <T	.002 <T	.002 <T	.003 <T
1992 JUL	.014	.002 <T	.003 <T	.003 <T	.003 <T	.003 <T	.003 <T	.003 <T	.004 <T
1992 OCT	.007	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T	.002 <T
1992 NOV									
1992 DEC									
NITRATE (TOTAL) (MG/L)									
		DET'N LIMIT = 0.005				GUIDELINE = 10.0 (A1)			
1991 JAN	.520	.495	.515	.485	.525	.505	.505	.525	.505
1991 FEB	.830	.825		.855	.855	.895	.895	.855	.895
1991 MAR	1.130	1.130	1.100	1.080	1.130	1.090	1.090	1.130	1.090
1991 APR	.330	.350	.350	.380	.380	.075	.075	.380	.075
1991 MAY	.120	.080	.125	.090	.115	.040	.040	.090	.040
1991 JUN	.030	.030	.025	.030	.030	.005 <T	.005 <T	.030	.005 <T
1991 SEP	BOL	.005 <T		.025	.025	.125	.125	.025	.100
1991 OCT	.110	.120	.105	.120	.120	.620	.620	.125	.660
1991 DEC	.655	.660	.655	.665	.665	.215	.215	.665	.660
1992 FEB	.440	.425	.490	.455	.455	.245	.245	.455	.245
1992 MAY	.225	.235							
1992 JUL	.010 <T	.010 <T	.015 <T	.030	.030	.010 <T	.010 <T	.030	.010 <T
1992 OCT	.850	.850	.745	.730	.730	.745	.745	.730	.745
1992 NOV	.685	.715							
1992 DEC			.820	.865	.865				

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	CHEMISTRY (LABORATORY)				DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
		NITROGEN TOT KJELD (MG/L)	DET'N LIMIT = 0.02	GUIDELINE = N/A				
1991 JAN	.880	.440	.470	.490	.500			.440
1991 FEB	.880	.470		.490	.450			.470
1991 MAR	.630	.420		.470	.460			.480
1991 APR	.470	.120	.330	.530				
1991 MAY	.930	.390	.400	.460	.390			.410
1991 JUN	1.040	.510	.510	.500	.530			.500
1991 SEP	.270	.260	.150	.270	.270			.110
1991 OCT	.720	.420	.420	.490	.340			.440
1991 DEC	.600	.340	.280	.360	.280			.330
1992 FEB	1.220	.560	.540	.620	.540			.550
1992 MAY	1.010	.530		.550				
1992 JUL	.940	.560	.560	.570				
1992 OCT	.910	.620						
1992 NOV	1.060	.460						
1992 DEC			.490	.600				
PH (OMNSLESS)								
1991 JAN	8.310	7.940	7.870	7.890	7.920			7.870
1991 FEB	8.260	7.840		7.960	7.900			7.950
1991 MAR	8.230	7.800	7.690	7.730	7.790			7.760
1991 APR	8.210	7.610	7.630	7.610				
1991 MAY	8.140	7.470	7.590	7.650	7.610			7.620
1991 JUN	8.290	7.650	7.630	7.710	7.680			7.780
1991 SEP	8.110	7.790	7.760	7.690	7.820			7.960
1991 OCT	8.270	8.230	8.160	8.240	8.190			8.150
1991 DEC	8.390	8.260	8.270	8.340	8.360			8.290
1992 FEB	8.400	8.310	8.340	8.360				
1992 MAY	8.190	7.910			7.960			7.990
1992 JUL	8.190	7.910	8.110	8.110				
1992 OCT	8.310	8.100	8.090	8.100				
1992 NOV	8.330	8.180						
1992 DEC			8.250	8.260				
DET'N LIMIT = N/A								
GUIDELINE = 6.5-8.5 (A4)								

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT FREE FLOW	DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
CHEMISTRY (LABORATORY)					
PHOSPHORUS FIL REACT (MG/L)		DET'N LIMIT = 0.0005		GUIDELINE = N/A	
1991 JAN	.001 <T	BOL			
1991 FEB	.001 <T	BOL			
1991 MAR	.002	.000 <T			
1991 APR	.003	BOL			
1991 MAY	.006	.000 <T			
1991 JUN	.002 <T	.000 <T			
1991 SEP	.002 <T	.000 <T			
1991 OCT	.001 <T	BOL			
1991 DEC	.001 <T	BOL			
1992 FEB	.002 <T	BOL			
1992 MAY	.002 <T	BOL			
1992 JUL	.001 <T	.001 <T			
1992 OCT	.003 <T	BOL			
1992 NOV	.003 <T	BOL			
PHOSPHORUS TOTAL (MG/L)		DET'N LIMIT = 0.002		GUIDELINE = 0.40 (F2)	
1991 JAN	.013	.002 <T			
1991 FEB	.022	.004 <T			
1991 MAR	.017	.002 <T			
1991 APR	.031	.002 <T			
1991 MAY	.106	.005 <T			
1991 JUN	.045	.006 <T			
1991 SEP	.002 <T	BOL			
1991 OCT	.026	.003 <T			
1991 DEC	.016	.005 <T			
1992 FEB	.020	.006 <T			
1992 MAY	.059	.008 <T			
1992 JUL	.032	.006 <T			
1992 OCT	.020	.006 <T			
1992 NOV	.029	.005 <T			

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

RESIDUE	FILTRATE (MG/L)	CHEMISTRY (LABORATORY)				DIST. SYSTEM				DIST. SYSTEM			
		DET'N LIMIT = N/A				BIRCH CT				VICTORIA AVE			
						FREE FLOW	STANDING			FREE FLOW	STANDING		
1991 JAN	258.000 CRO	276.000 CRO	276.000 CRO	274.000 CRO	277.000 CRO	273.000 CRO	278.000 CRO	278.000 CRO	278.000 CRO	273.000 CRO	278.000 CRO	278.000 CRO	278.000 CRO
1991 FEB	268.000 CRO	280.000 CRO	280.000 CRO	291.000 CRO	280.000 CRO	283.000 CRO	283.000 CRO	283.000 CRO	283.000 CRO	283.000 CRO	283.000 CRO	283.000 CRO	283.000 CRO
1991 MAR	274.000 CRO	291.000 CRO	291.000 CRO	291.000 CRO	292.000 CRO	292.000 CRO	292.000 CRO	292.000 CRO	292.000 CRO	292.000 CRO	292.000 CRO	292.000 CRO	292.000 CRO
1991 APR	228.000 CRO	249.000 CRO	249.000 CRO	246.000 CRO	252.000 CRO	252.000 CRO	252.000 CRO	252.000 CRO	252.000 CRO	252.000 CRO	252.000 CRO	252.000 CRO	252.000 CRO
1991 MAY	220.000 CRO	235.000 CRO	235.000 CRO	237.000 CRO	237.000 CRO	237.000 CRO	237.000 CRO	237.000 CRO	237.000 CRO	237.000 CRO	237.000 CRO	237.000 CRO	237.000 CRO
1991 JUN	240.000 CRO	258.000 CRO	258.000 CRO	259.000 CRO	259.000 CRO	259.000 CRO	259.000 CRO	259.000 CRO	259.000 CRO	259.000 CRO	259.000 CRO	259.000 CRO	259.000 CRO
1991 SEP	216.000 CRO	237.000 CRO	237.000 CRO	235.000 CRO	239.000 CRO	235.000 CRO	239.000 CRO	239.000 CRO	239.000 CRO	235.000 CRO	238.000 CRO	238.000 CRO	238.000 CRO
1991 OCT	239.000 CRO	289.000 CRO	289.000 CRO	287.000 CRO	291.000 CRO	286.000 CRO	289.000 CRO	289.000 CRO	289.000 CRO	286.000 CRO	289.000 CRO	289.000 CRO	289.000 CRO
1991 DEC	288.000 CRO	332.000 CRO	332.000 CRO	331.000 CRO	335.000 CRO	334.000 CRO	335.000 CRO	335.000 CRO	335.000 CRO	334.000 CRO	335.000 CRO	335.000 CRO	335.000 CRO
1992 FEB	269.000 CRO	330.000 CRO	330.000 CRO	316.000 CRO	316.000 CRO	314.000 CRO	314.000 CRO	314.000 CRO	314.000 CRO	314.000 CRO	314.000 CRO	314.000 CRO	314.000 CRO
1992 MAY	270.000 CRO	329.000 CRO	329.000 CRO	292.000 CRO	292.000 CRO	292.000 CRO	292.000 CRO	292.000 CRO	292.000 CRO	292.000 CRO	292.000 CRO	292.000 CRO	292.000 CRO
1992 JUL	229.000 CRO	268.000 CRO	268.000 CRO	356.000 CRO	353.000 CRO	353.000 CRO	353.000 CRO	353.000 CRO	353.000 CRO	353.000 CRO	353.000 CRO	353.000 CRO	353.000 CRO
1992 OCT	324.000 CRO	369.000 CRO	369.000 CRO	322.000 CRO	322.000 CRO	322.000 CRO	322.000 CRO	322.000 CRO	322.000 CRO	322.000 CRO	322.000 CRO	322.000 CRO	322.000 CRO
1992 NOV	252.000 CRO	313.000 CRO	313.000 CRO	322.000 CRO	322.000 CRO	322.000 CRO	322.000 CRO	322.000 CRO	322.000 CRO	322.000 CRO	322.000 CRO	322.000 CRO	322.000 CRO
1992 DEC													
SULPHATE (MG/L)		DET'N LIMIT = 0.20				GUIDELINE = 500 (A3)				GUIDELINE = 500 (A3)			
1991 JAN	19.220	69.230	69.230	65.870	65.440	64.830	66.780	66.780	66.780	64.830	66.780	66.780	66.780
1991 FEB	19.400	60.280	60.280	59.650	67.490	66.710	67.330	67.330	67.330	66.710	67.330	67.330	67.330
1991 MAR	19.260	62.000	62.000	59.650	62.950	51.310	61.140	61.140	61.140	51.310	61.140	61.140	61.140
1991 APR	14.380	67.740	67.740	62.420	66.340								
1991 MAY	13.910	62.500	62.500	60.150	62.910	60.510	63.090	63.090	63.090	60.510	63.090	63.090	63.090
1991 JUN	12.130	60.310	60.310	57.890	59.400	59.240	59.500	59.500	59.500	59.240	59.500	59.500	59.500
1991 SEP	18.870	78.570	78.570	73.740	78.780	77.200	77.610	77.610	77.610	77.200	77.610	77.610	77.610
1991 OCT	19.440	63.700	63.700	66.350	66.720	65.440	67.050	67.050	67.050	65.440	67.050	67.050	67.050
1991 DEC	27.680	73.350	73.350	77.740	80.950	76.030	76.080	76.080	76.080	76.030	76.080	76.080	76.080
1992 FEB	20.890	67.550	67.550	67.160	68.090								
1992 MAY	19.510	73.590	73.590			71.600	72.170	72.170	72.170	71.600	72.170	72.170	72.170
1992 JUL	14.310	56.350	56.350	60.500	60.620								
1992 OCT	21.900	75.930	75.930	72.810	73.900								
1992 NOV	18.690	77.480	77.480	76.390	74.660								
1992 DEC													

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TURBIDITY (FTU)	TREATMENT PLANT RAW	TREATMENT PLANT TREATED	CHEMISTRY (LABORATORY)				DET'N LIMIT = 0.05				GUIDELINE = 1.0 (A1)			
			3.500 RRV	.990	1.790 RRV	.990	1.720 RRV	1.120 RRV	1.220 RRV	1.790 RRV	1.720 RRV	1.220 RRV	1.220 RRV	1.790 RRV
1991 JAN			2.900 RRV	.690		.730								
1991 FEB			3.500	.320	.500	.480								
1991 MAR			7.700	.360	.660	.750								.800
1991 APR			48.000	.730	.920	.970								
1991 MAY			8.000	.690	.640	.620								1.090 RRV
1991 JUN			4.300	.360	.460	.900								.950
1991 SEP			3.500	.330	.270	.560								.910
1991 OCT			2.900	.300	.220 <T	.610								.410
1991 DEC			3.700	.410	.440	.460								.610
1992 FEB			10.900	.700										.900
1992 MAY			8.700	.780	.750	.740								
1992 JUL			4.600	1.180 RRV	.920	.930								
1992 OCT			8.900	.580										
1992 NOV					.790	.920								
1992 DEC														

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW		TREATMENT PLANT TREATED		DIST. SYSTEM BIRCH CT FREE FLOW		DIST. SYSTEM BIRCH CT STANDING		DIST. SYSTEM VICTORIA AVE FREE FLOW		DIST. SYSTEM VICTORIA AVE STANDING	
METALS		METALS		DET'N LIMIT = 0.05		GUIDELINE = N/A		METALS		METALS	
SILVER (UG/L)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
71 SAMPLES		71 SAMPLES		DET'N LIMIT = 0.10		GUIDELINE = 100 (A4)		71 SAMPLES		71 SAMPLES	
ALUMINUM (UG/L)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	ALUMINUM (UG/L)	BDL	ALUMINUM (UG/L)	BDL
1991 JAN	41.000	340.000	730.000	320.000	470.000	260.000	260.000	1991 JAN	670 <T	560 <T	.640 <T
1991 FEB	99.000	450.000	460.000	310.000	310.000	230.000	230.000	1991 FEB	.550 <T	.570 <T	.290 <T
1991 MAR	46.000	150.000	170.000	140.000	190.000	130.000	130.000	1991 MAR	.300 <T	.240 <T	.330 <T
1991 APR	70.000	72.000	58.000	70.000	70.000	100.000	100.000	1991 APR	.180 <T	.150 <T	.130 <T
1991 MAY	610.000	110.000	120.000	110.000	110.000	150.000	150.000	1991 MAY	BDL	BDL	BDL
1991 JUN	130.000	180.000	170.000	170.000	160.000	49.000	49.000	1991 JUN	.580 <T	.570 <T	.440 <T
1991 SEP	82.000	70.000	63.000	63.000	55.000	150.000	150.000	1991 SEP	.870 <T	.250 <T	.290 <T
1991 OCT	77.000	190.000	150.000	170.000	150.000	55.000	55.000	1991 OCT	.500 <T	.400 <T	.320 <T
1991 DEC	130.000	61.000	67.000	67.000	60.000	150.000	150.000	1991 DEC	.440 <T	.350 <T	.300 <T
1992 FEB	56.000	180.000	190.000	190.000	210.000	210.000	210.000	1992 FEB	.580 <T	.450 <T	.890 <T
1992 MAY	79.000	250.000	150.000	130.000	210.000	210.000	210.000	1992 MAY	.990 <T	.850 <T	.660 <T
1992 JUL	73.000	150.000	150.000	130.000	210.000	210.000	210.000	1992 JUL	.610 <T	.520 <T	.520 <T
1992 OCT	28.000	310.000	230.000	220.000	210.000	210.000	210.000	1992 OCT	.580 <T	.550 <T	.550 <T
1992 NOV	36.000	230.000	210.000	210.000	210.000	210.000	210.000	1992 NOV	.610 <T	.550 <T	.550 <T
1992 DEC								1992 DEC	.230 <T	.110 <T	.430 <T
ARSENIC (UG/L)		ARSENIC (UG/L)		DET'N LIMIT = 0.10		GUIDELINE = 25 (A1)		ARSENIC (UG/L)		ARSENIC (UG/L)	
1991 JAN	.670 <T	.560 <T	.640 <T	.570 <T	.550 <T	.640 <T	.640 <T	1991 JAN	.670 <T	.560 <T	.640 <T
1991 FEB	.550 <T	.570 <T	.420 <T	.430 <T	.340 <T	.290 <T	.290 <T	1991 FEB	.550 <T	.570 <T	.640 <T
1991 MAR	.300 <T	.240 <T	.240 <T	.240 <T	.210 <T	.330 <T	.330 <T	1991 MAR	.300 <T	.240 <T	.290 <T
1991 APR	.180 <T	.150 <T	.130 <T	.130 <T	.210 <T	.330 <T	.330 <T	1991 APR	.180 <T	.150 <T	.130 <T
1991 MAY	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1991 MAY	BDL	BDL	BDL
1991 JUN	.580 <T	.570 <T	.450 <T	.540 <T	.500 <T	.440 <T	.440 <T	1991 JUN	.580 <T	.570 <T	.440 <T
1991 SEP	.870 <T	.250 <T	.350 <T	.270 <T	.260 <T	.290 <T	.290 <T	1991 SEP	.870 <T	.250 <T	.290 <T
1991 OCT	.500 <T	.400 <T	.410 <T	.370 <T	.310 <T	.320 <T	.320 <T	1991 OCT	.500 <T	.400 <T	.320 <T
1991 DEC	.440 <T	.350 <T	.240 <T	.240 <T	.280 <T	.300 <T	.300 <T	1991 DEC	.440 <T	.350 <T	.320 <T
1992 FEB	.580 <T	.450 <T	.500 <T	.520 <T	.660 <T	.890 <T	.890 <T	1992 FEB	.580 <T	.450 <T	.890 <T
1992 MAY	.990 <T	.850 <T	.610 <T	.520 <T	.660 <T	.890 <T	.890 <T	1992 MAY	.990 <T	.850 <T	.660 <T
1992 JUL	.610 <T	.520 <T	.520 <T	.520 <T	.660 <T	.890 <T	.890 <T	1992 JUL	.610 <T	.520 <T	.660 <T
1992 OCT	.580 <T	.550 <T	.550 <T	.550 <T	.660 <T	.890 <T	.890 <T	1992 OCT	.580 <T	.550 <T	.660 <T
1992 NOV	.230 <T	.110 <T	.430 <T	.380 <T	.660 <T	.890 <T	.890 <T	1992 NOV	.230 <T	.110 <T	.430 <T
1992 DEC								1992 DEC			

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	TREATMENT PLANT	DIST. SYSTEM		DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
			BIRCH CT	FREE FLOW			
METALS							
BARIUM (UG/L)							
DET'N LIMIT = 0.05							
GUIDELINE = 1000 (A2)							
1991 JAN	31,000	24,000	25,000	26,000	26,000	26,000	27,000
1991 FEB	33,000	24,000	26,000	26,000	26,000	24,000	26,000
1991 MAR	32,000	25,000	26,000	27,000	27,000	25,000	29,000
1991 APR	29,000	26,000	25,000	28,000	28,000	29,000	31,000
1991 MAY	45,000	29,000	29,000	29,000	29,000	29,000	29,000
1991 JUN	33,000	30,000	28,000	30,000	30,000	27,000	26,000
1991 SEP	31,000	28,000	28,000	27,000	27,000	24,000	25,000
1991 OCT	30,000	27,000	27,000	28,000	28,000	32,000	37,000
1991 DEC	43,000	35,000	26,000	29,000	29,000	36,000	37,000
1992 FEB	32,000	28,000	30,000	29,000	29,000	36,000	37,000
1992 MAY	41,000	36,000	29,000	29,000	29,000	36,000	37,000
1992 JUL	31,000	32,000	29,000	29,000	29,000	36,000	37,000
1992 OCT	38,000	30,000	29,000	29,000	29,000	36,000	37,000
1992 NOV	31,000	24,000	26,000	26,000	26,000	36,000	37,000
1992 DEC	31,000	24,000	26,000	26,000	26,000	36,000	37,000
BORON (UG/L)							
DET'N LIMIT = 2.00							
GUIDELINE = 5000 (A1)							
1991 JAN	18,000 <T	12,000 <T	18,000 <T	17,000 <T	17,000 <T	17,000 <T	18,000 <T
1991 FEB	18,000 <T	17,000 <T	16,000 <T	17,000 <T	17,000 <T	12,000 <T	11,000 <T
1991 MAR	13,000 <T	9,200 <T	9,300 <T	18,000 <T	18,000 <T	19,000 <T	26,000
1991 APR	11,000 <T	11,000 <T	10,000 <T	11,000 <T	11,000 <T	12,000 <T	12,000 <T
1991 MAY	13,000 <T	12,000 <T	13,000 <T	12,000 <T	12,000 <T	12,000 <T	12,000 <T
1991 JUN	13,000 <T	13,000 <T	13,000 <T	14,000 <T	14,000 <T	16,000 <T	17,000 <T
1991 SEP	18,000 <T	16,000 <T	16,000 <T	21,000	21,000	20,000 <T	13,000 <T
1991 OCT	18,000 <T	18,000 <T	19,000 <T	18,000 <T	18,000 <T	17,000 <T	12,000 <T
1991 DEC	19,000 <T	18,000 <T	18,000 <T	11,000 <T	11,000 <T	15,000 <T	15,000 <T
1992 FEB	14,000 <T	15,000 <T	16,000 <T	13,000 <T	13,000 <T	15,000 <T	15,000 <T
1992 MAY	16,000 <T	16,000 <T	18,000 <T	18,000 <T	18,000 <T	15,000 <T	15,000 <T
1992 JUL	17,000 <T	18,000 <T	18,000 <T	14,000 <T	14,000 <T	15,000 <T	15,000 <T
1992 OCT	16,000 <T	15,000 <T	12,000 <T	14,000 <T	14,000 <T	15,000 <T	15,000 <T
1992 NOV	12,000 <T	10,000 <T	11,000 <T	11,000 <T	11,000 <T	15,000 <T	15,000 <T
1992 DEC	12,000 <T	10,000 <T	11,000 <T	11,000 <T	11,000 <T	15,000 <T	15,000 <T

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT FREE FLOW		DIST. SYSTEM BIRCH CT STANDING		DIST. SYSTEM VICTORIA AVE FREE FLOW		DIST. SYSTEM VICTORIA AVE STANDING	
		DET'N LIMIT = 0.05		GUIDELINE = 6800 (D4)					
BERYLLIUM (UG/L)									
1991 JAN	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 FEB	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 MAR	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 APR	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 MAY	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 JUN	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 SEP	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 OCT	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 DEC	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 FEB	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 MAY	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 JUL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 OCT	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 NOV	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 DEC	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
CADMIUM (UG/L)									
		DET'N LIMIT = 0.05		GUIDELINE = 5.0 (A1)					
1991 JAN	.060 <T	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 FEB	.990	BDL	BDL	.060 <T	BDL	BDL	BDL	.070 <T	BDL
1991 MAR	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 APR	BDL	BDL	BDL	.110 <T	BDL	BDL	BDL	BDL	BDL
1991 MAY	.080 <T	BDL	BDL	.120 <T	BDL	BDL	BDL	.070 <T	BDL
1991 JUN	BDL	BDL	BDL	.180 <T	BDL	BDL	BDL	BDL	BDL
1991 SEP	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 OCT	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 DEC	.060 <T	BDL	BDL	.130 <T	BDL	BDL	BDL	BDL	BDL
1992 FEB	BDL	BDL	BDL	.090 <T	BDL	BDL	BDL	BDL	BDL
1992 MAY	.070 <T	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 JUL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 OCT	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 NOV	BDL	BDL	BDL	.060 <T	BDL	BDL	BDL	BDL	BDL
1992 DEC	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM FREE FLOW		DIST. SYSTEM STANDING		DIST. SYSTEM VICTORIA AVE FREE FLOW		DIST. SYSTEM VICTORIA AVE STANDING	
		BIRCH CT	BIRCH CT	BIRCH CT	BIRCH CT	VICTORIA AVE	VICTORIA AVE	VICTORIA AVE	VICTORIA AVE
METALS									
COBALT (UG/L)									
DET'N LIMIT = 0.02									
GUIDELINE = N/A									
1991 JAN	.220 <T	.190 <T	.180 <T	.190 <T	.190 <T	.210 <T	.210 <T	.160 <T	.160 <T
1991 FEB	.290 <T	.280 <T	.260 <T	.330 <T	.330 <T	.260 <T	.260 <T	.250 <T	.250 <T
1991 MAR	.190 <T	.170 <T	.120 <T	.180 <T	.180 <T	.190 <T	.190 <T	.170 <T	.170 <T
1991 APR	.270 <T	.130 <T	.180 <T	.150 <T	.150 <T	.120 <T	.120 <T	.180 <T	.180 <T
1991 MAY	.780 <T	.220 <T	.080 <T	.080 <T	.080 <T	.070 <T	.070 <T	.090 <T	.090 <T
1991 JUN	.170 <T	.120 <T	.030 <T	.030 <T	.030 <T	.130 <T	.130 <T	.160 <T	.160 <T
1991 SEP	.180 <T	.180 <T	.140 <T	.140 <T	.140 <T	.200 <T	.200 <T	.330 <T	.330 <T
1991 OCT	.510 <T	.320 <T	.300 <T	.280 <T	.280 <T	.110 <T	.110 <T	.140 <T	.140 <T
1991 DEC	.140 <T	.150 <T	.310 <T	.350 <T	.350 <T	.430 <T	.430 <T	.420 <T	.420 <T
1992 FEB	.280 <T	.340 <T	.250 <T	.210 <T	.210 <T	.850 <T	.850 <T	.190 <T	.190 <T
1992 MAY	.490 <T	.520 <T	.910 <T	.850 <T	.850 <T	.190 <T	.190 <T	.160 <T	.160 <T
1992 JUL	.220 <T	.230 <T	.240 <T	.240 <T	.240 <T	.190 <T	.190 <T	.160 <T	.160 <T
1992 OCT	.920 <T	.780 <T	.260 <T	.260 <T	.260 <T	.190 <T	.190 <T	.160 <T	.160 <T
1992 NOV	.230 <T	.260 <T	.240 <T	.240 <T	.240 <T	.190 <T	.190 <T	.160 <T	.160 <T
1992 DEC	.230 <T	.260 <T	.240 <T	.240 <T	.240 <T	.190 <T	.190 <T	.160 <T	.160 <T
CHROMIUM (UG/L)									
DET'N LIMIT = 0.50									
GUIDELINE = 50.0 (A1)									
1991 JAN	2.200 <T	1.400 <T	3.700 <T	3.000 <T	3.000 <T	2.600 <T	2.600 <T	3.000 <T	3.000 <T
1991 FEB	4.000 <T	3.900 <T	3.500 <T	3.200 <T	3.200 <T	1.300 <T	1.300 <T	.840 <T	.840 <T
1991 MAR	2.700 <T	1.700 <T	1.600 <T	5.400	5.400	4.900 <T	4.900 <T	8.300	8.300
1991 APR	.840 <T	1.900 <T	1.700 <T	1.800 <T	1.800 <T	1.200 <T	1.200 <T	.900 <T	.900 <T
1991 MAY	1.500 <T	2.000 <T	2.100 <T	2.000 <T	2.000 <T	.820 <T	.820 <T	BOL	BOL
1991 JUN	.990 <T	.940 <T	1.300 <T	1.100 <T	1.100 <T	.600 <T	.600 <T	BOL	BOL
1991 SEP	.570 <T	.900 <T	.870 <T	.950 <T	.950 <T	2.900 <T	2.900 <T	1.200 <T	1.200 <T
1991 OCT	2.500 <T	3.000 <T	3.000 <T	3.000 <T	3.000 <T	3.900 <T	3.900 <T	1.100 <T	1.100 <T
1991 DEC	4.300 <T	4.300 <T	1.300 <T	.720 <T	.720 <T	.720 <T	.720 <T	.920 <T	.920 <T
1992 FEB	BOL	.730 <T	1.100 <T	1.100 <T	1.100 <T	.720 <T	.720 <T	.920 <T	.920 <T
1992 MAY	.730 <T	1.100 <T	1.100 <T	1.100 <T	1.100 <T	.720 <T	.720 <T	.920 <T	.920 <T
1992 JUL	.530 <T	.970 <T	1.600 <T	4.000 <T	4.000 <T	.720 <T	.720 <T	.920 <T	.920 <T
1992 OCT	4.700 <T	4.700 <T	1.600 <T	4.000 <T	4.000 <T	.720 <T	.720 <T	.920 <T	.920 <T
1992 NOV	.790 <T	1.700 <T	1.600 <T	1.600 <T	1.600 <T	.720 <T	.720 <T	.920 <T	.920 <T
1992 DEC	.790 <T	1.700 <T	1.600 <T	1.600 <T	1.600 <T	.720 <T	.720 <T	.920 <T	.920 <T

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

METALS											
)											
COPPER (UG/L)		DET'N LIMIT = 0.50				GUIDELINE = 1000 (A3)					
1991 JAN	2,600 <T	2,900 <T	16,000	170,000	51,000	150,000					
1991 FEB	24,000	4,400 <T	12,000	200,000	120,000	190,000					
1991 MAR	1,200 <T	3,700 <T	11,000	140,000	50,000	170,000					
1991 APR	1,100 <T	5,700	23,000	160,000							
1991 MAY	2,400 <T	8,700	23,000	120,000	61,000	140,000					
1991 JUN	.780 <T	8,700	19,000	130,000	220,000	170,000					
1991 SEP	.820 <T	8,500	56,000	290,000	170,000	170,000					
1991 OCT	.810 <T	2,600 <T	10,000	53,000	45,000	69,000					
1991 DEC	1,000 <T	3,900 <T		78,000	48,000	80,000					
1992 FEB	1,200 <T	1,700 <T	16,000	93,000							
1992 MAY	1,000 <T	5,300			41,000	77,000					
1992 JUL	2,300 <T	6,100	7,800	55,000							
1992 OCT	BOL	7,800	5,000 <T	60,000							
1992 NOV	.870 <T	5,500									
1992 DEC			8,300	52,000							
IRON (UG/L)											
)											
		DET'N LIMIT = 6.00				GUIDELINE = 300 (A3)					
1991 JAN	47,000 <T	12,000 <T	38,000 <T	18,000 <T	160,000	200,000					
1991 FEB	60,000 <T	BOL	33,000 <T	26,000 <T	340,000	180,000					
1991 MAR	75,000	BOL	19,000 <T	13,000 <T	140,000	110,000					
1991 APR	95,000	BOL	20,000 <T	22,000 <T							
1991 MAY	720,000	23,000 <T	33,000 <T	72,000	150,000	230,000					
1991 JUN	190,000	12,000 <T	31,000 <T	39,000 <T	180,000	220,000					
1991 SEP	170,000	7,000 <T	36,000 <T	58,000 <T	270,000	430,000					
1991 OCT	90,000	BOL	10,000 <T	9,800 <T	200,000	46,000 <T					
1991 DEC	46,000 <T	7,800 <T		18,000 <T	110,000	40,000 <T					
1992 FEB	50,000 <T	10,000 <T	20,000 <T	18,000 <T	30,000 <T	34,000 <T					
1992 MAY	130,000	11,000 <T		18,000 <T							
1992 JUL	140,000	7,700 <T	18,000 <T	190,000							
1992 OCT	200,000	160,000	140,000								
1992 NOV	55,000 <T	7,200 <T		25,000 <T							
1992 DEC			17,000 <T								
MERCURY (UG/L)											
)											
		DET'N LIMIT = 0.02				GUIDELINE = 1.0 (A1)					
1991 JAN	.060 <T	BOL									
1991 FEB	.040 <T	BOL									
1991 MAR	BOL	BOL									
1991 APR	BOL	BOL									
1991 MAY	BOL	BOL									
1991 JUN	BOL	BOL									
1991 SEP	BOL	BOL									
1991 OCT	BOL	BOL									
1991 DEC	BOL	BOL									
1992 FEB	BOL	BOL									
1992 MAY	BOL	BOL									
1992 JUL	BOL	BOL									
1992 OCT	BOL	BOL									
1992 NOV	BOL	BOL									

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM FREE FLOW		DIST. SYSTEM BIRCH CT STANDING		DIST. SYSTEM VICTORIA AVE FREE FLOW		DIST. SYSTEM VICTORIA AVE STANDING	
		METALS		METALS		METALS		METALS	
MANGANESE (UG/L)		DET'N LIMIT = 0.05		DET'N LIMIT = 0.05		GUIDELINE = 50.0 (A3)			
1991 JAN	20,000	7,600	7,800	6,400	9,500	12,000	14,000	13,000	12,000
1991 FEB	16,000	6,300	5,900	4,100	4,900	12,000	12,000	12,000	12,000
1991 MAR	12,000	7,400	3,700	4,900	4,900	13,000	18,000	13,000	25,000
1991 APR	23,000	6,400	4,000	7,000	9,900	16,000	11,000	6,200	3,300
1991 MAY	210,000	7,600	5,400	9,900	8,700	11,000	10,000	13,000	13,000
1991 JUN	57,000	9,200	5,100	2,600	5,100	10,000	12,000	13,000	13,000
1991 SEP	50,000	6,700	2,300	5,100	5,100	12,000	13,000	13,000	13,000
1991 OCT	17,000	5,000	10,000	5,100	5,100	12,000	13,000	13,000	13,000
1991 DEC	6,300	2,600	5,300	4,500	4,500	12,000	13,000	13,000	13,000
1992 FEB	24,000	5,000	5,300	4,500	4,500	12,000	13,000	13,000	13,000
1992 MAY	71,000	10,000	5,300	4,500	4,500	12,000	13,000	13,000	13,000
1992 JUL	45,000	8,500	5,300	4,500	4,500	12,000	13,000	13,000	13,000
1992 OCT	14,000	11,000	4,500	4,500	4,500	12,000	13,000	13,000	13,000
1992 NOV	46,000	4,200	3,400	3,700	3,700	12,000	13,000	13,000	13,000
1992 DEC									
		DET'N LIMIT = 0.05		DET'N LIMIT = 0.05		GUIDELINE = N/A			
MOLYBDENUM (UG/L)									
1991 JAN	.310 <T	.320 <T	.350 <T	.370 <T	.290 <T	.290 <T	.350 <T	.330 <T	.290 <T
1991 FEB	.340 <T	.310 <T	.330 <T	.300 <T	.320 <T	.360 <T	.360 <T	.360 <T	.360 <T
1991 MAR	.270 <T	.320 <T	.360 <T	.340 <T	.360 <T	.360 <T	.360 <T	.360 <T	.360 <T
1991 APR	.170 <T	.330 <T	1,200	.300 <T	.340 <T	.340 <T	.340 <T	.340 <T	.340 <T
1991 MAY	.190 <T	.300 <T	.360 <T	.330 <T	.360 <T	.360 <T	.360 <T	.360 <T	.360 <T
1991 JUN	.320 <T	.300 <T	.370 <T	.350 <T	.430 <T	.430 <T	.430 <T	.430 <T	.430 <T
1991 SEP	.480 <T	.510	.550	.500 <T	.420 <T	.440 <T	.440 <T	.440 <T	.440 <T
1991 OCT	.380 <T	.320 <T	.390 <T	.420 <T	.490 <T	.490 <T	.490 <T	.490 <T	.490 <T
1991 DEC	.410 <T	.410 <T	.260 <T	.400 <T	.450 <T	.450 <T	.450 <T	.450 <T	.450 <T
1992 FEB	.290 <T	.370 <T	.330 <T	.460 <T	.460 <T	.460 <T	.460 <T	.460 <T	.460 <T
1992 MAY	.560	.540	.330 <T	.220 <T	.220 <T	.220 <T	.220 <T	.220 <T	.220 <T
1992 JUL	.310 <T	.420 <T	.250 <T	.250 <T	.250 <T	.250 <T	.250 <T	.250 <T	.250 <T
1992 OCT	.210 <T	.220 <T	.340 <T	.260 <T	.260 <T	.260 <T	.260 <T	.260 <T	.260 <T
1992 NOV	.120 <T	.250 <T							
1992 DEC									

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

METALS					
NICKEL (UG/L)					
TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT FREE FLOW	DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
DET'N LIMIT = 0.20					
1991 JAN	BOL	BOL	1,900 <T	BOL	.520 <T
1991 FEB	4,000	2,200	4,200	1,800 <T	2,500
1991 MAR	BOL	BOL	.400 <T	BOL	.750 <T
1991 APR	BOL	BOL	1,300 <T	BOL	BOL
1991 MAY	BOL	BOL	.740 <T	BOL	BOL
1991 JUN	BOL	BOL	1,900 <T	BOL	3,400
1991 SEP	2,200	BOL	3,900	BOL	.580 <T
1991 OCT	.460 <T	.920 <T	1,700 <T	1,100 <T	4,000
1991 DEC	BOL	BOL	1,200 <T	BOL	BOL
1992 FEB	2,200	2,200	4,500	2,400	5,300
1992 MAY	2,500	BOL	.220 <T	BOL	BOL
1992 JUL	BOL	3,500	4,000	BOL	BOL
1992 OCT	1,900 <T	BOL	2,400	BOL	BOL
1992 NOV	BOL	BOL	BOL	BOL	BOL
1992 DEC	BOL	BOL	BOL	BOL	BOL
DET'N LIMIT = 0.05					
LEAD (UG/L)					
DET'N LIMIT = 10 (A1)					
1991 JAN	1,700	.220 <T	2,100	.450 <T	3,400
1991 FEB	2,200	.140 <T	4,000	.890	3,800
1991 MAR	.240 <T	.170 <T	2,000	.380 <T	3,200
1991 APR	.620	.250 <T	2,900	BOL	BOL
1991 MAY	2,600	.440 <T	2,400	1,100	3,800
1991 JUN	.610	.490 <T	2,800	2,500	5,500
1991 SEP	.430 <T	.370 <T	5,800	2,400	6,400
1991 OCT	.310 <T	.350 <T	2,400	.780	1,400
1991 DEC	.810	.310 <T	25,000	.510	1,100
1992 FEB	.570	.120 <T	11,000	BOL	BOL
1992 MAY	.640	.300 <T	1,400	.520	1,400
1992 JUL	.400 <T	.360 <T	5,300	BOL	BOL
1992 OCT	.170 <T	.390 <T	3,800	BOL	BOL
1992 NOV	.680	BOL	BOL	BOL	BOL
1992 DEC	BOL	.270 <T	BOL	BOL	BOL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT		DIST. SYSTEM STANDING		DIST. SYSTEM VICTORIA AVE FREE FLOW		DIST. SYSTEM VICTORIA AVE STANDING
		FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	
METALS								
ANTHIMONY (UG/L)		DET'N LIMIT = 0.05		GUIDELINE = 146 (D4)				
1991 JAN	.600	.440 <T	.580	.750	.590	.550	.550	.550
1991 FEB	.560	.440 <T	.610	.640	.550	.550	.520	.520
1991 MAR	.390 <T	.400 <T	.390 <T	.430 <T	.450 <T	.430 <T	.430 <T	.430 <T
1991 APR	.370 <T	.360 <T	.460 <T	.450 <T	.460 <T	.430 <T	.430 <T	.430 <T
1991 MAY	.390 <T	.320 <T	.560	.990	.870	.730	.730	.730
1991 JUN	.640	.640	.770	.790	.530	.620	.510	.510
1991 SEP	.450 <T	.450 <T	.680	.780	.520	.520	.520	.520
1991 OCT	.750	.380 <T	.730	.660	.530	.530	.530	.530
1991 DEC	.630	.350 <T	.870	.980	.390 <T	.370 <T	.370 <T	.370 <T
1992 FEB	.770	.620	.310 <T	.420 <T	.360 <T	.360 <T	.360 <T	.360 <T
1992 MAY	.310 <T	.210 <T	.360 <T	.730	.370 <T	.370 <T	.370 <T	.370 <T
1992 JUL	.250 <T	.460 <T	.370 <T	.460 <T	.460 <T	.460 <T	.460 <T	.460 <T
1992 OCT	.520	.310 <T	.460 <T	.460 <T	.460 <T	.460 <T	.460 <T	.460 <T
1992 NOV	.310 <T	.310 <T	.460 <T	.460 <T	.460 <T	.460 <T	.460 <T	.460 <T
1992 DEC	.310 <T	.310 <T	.460 <T	.460 <T	.460 <T	.460 <T	.460 <T	.460 <T
SELENIUM (UG/L)								
		DET'N LIMIT = 1.00		GUIDELINE = 10 (A1)				
1991 JAN	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 FEB	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 MAR	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 APR	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 MAY	BDL	1.200 <T	1.100 <T	BDL	BDL	BDL	BDL	BDL
1991 JUN	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 SEP	1.800 <T	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 OCT	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 DEC	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 FEB	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 MAY	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 JUL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 OCT	3.200 <T	2.600 <T	BDL	2.600 <T	BDL	BDL	BDL	BDL
1992 NOV	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 DEC	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

METALS					
STRONTIUM (UG/L)					
TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT FREE FLOW	DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
		DET'N LIMIT = 0.10		GUIDELINE = N/A	
1991 JAN	160.000	160.000	160.000	170.000	170.000
1991 FEB	180.000	180.000	170.000	170.000	170.000
1991 MAR	190.000	190.000	190.000	190.000	200.000
1991 APR	150.000	140.000	150.000	150.000	150.000
1991 MAY	190.000	160.000	180.000	180.000	180.000
1991 JUN	180.000	180.000	160.000	160.000	160.000
1991 SEP	160.000	160.000	160.000	160.000	170.000
1991 OCT	160.000	160.000	190.000	200.000	200.000
1991 DEC	200.000	170.000	160.000	200.000	200.000
1992 FEB	170.000	170.000	190.000	200.000	200.000
1992 MAY	210.000	180.000	210.000	200.000	200.000
1992 JUL	180.000	220.000	170.000	200.000	200.000
1992 OCT	240.000	170.000	170.000	200.000	200.000
1992 NOV	170.000	170.000	170.000	200.000	200.000
1992 DEC	170.000	170.000	170.000	200.000	200.000
TITANIUM (UG/L)					
		DET'N LIMIT = 0.50		GUIDELINE = N/A	
1991 JAN	7.300	5.500	5.800	5.400	5.700
1991 FEB	6.300	4.600 <T	4.900 <T	4.400 <T	4.700 <T
1991 MAR	6.300	4.300 <T	4.100 <T	4.600 <T	4.800 <T
1991 APR	4.800 <T	3.000 <T	3.900 <T	9.000	9.300
1991 MAY	27.000	7.000	7.200	9.000	9.300
1991 JUN	8.100	3.000 <T	3.600 <T	3.400 <T	3.400 <T
1991 SEP	4.100 <T	1.200 <T	1.200 <T	1.200 <T	1.400 <T
1991 OCT	2.900 <T	1.600 <T	1.600 <T	1.400 <T	2.300 <T
1991 DEC	3.100 <T	1.800 <T	1.700 <T	1.700 <T	1.700 <T
1992 FEB	3.600 <T	3.500 <T	3.700 <T	7.500	7.500
1992 MAY	9.800	7.400	7.500	7.500	7.500
1992 JUL	9.300	7.400	14.000	7.500	7.500
1992 OCT	19.000	16.000	14.000	7.500	7.500
1992 NOV	8.400	5.700	6.200	7.500	7.500
1992 DEC	8.400	5.700	6.200	7.500	7.500
THALLIUM (UG/L)					
		DET'N LIMIT = 0.05		GUIDELINE = 13 (04)	
71 SAMPLES	BDL	BDL	BDL	BDL	BDL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT		DIST. SYSTEM BIRCH CT		DIST. SYSTEM VICTORIA AVE		DIST. SYSTEM VICTORIA AVE	
		FREE FLOW		STANDING		FREE FLOW		STANDING	
METALS									
URANIUM (UG/L)		DET'N LIMIT = 0.05				GUIDELINE = 100 (A1)			
1991 JAN	.480 <T	.110 <T	.130 <T	.130 <T	.110 <T	.130 <T	.130 <T	.130 <T	.130 <T
1991 FEB	.540	.170 <T	.150 <T	.120 <T	.120 <T	.120 <T	.130 <T	.130 <T	.130 <T
1991 MAR	.720	.300 <T	.360 <T	.360 <T	.450 <T	.360 <T	.450 <T	.450 <T	.450 <T
1991 APR	.290 <T	BOL	BOL	BOL	BOL	BOL	BOL	BOL	BOL
1991 MAY	.410 <T	BOL	.080 <T	.070 <T	.060 <T	.060 <T	.080 <T	.080 <T	.080 <T
1991 JUN	.470 <T	.100 <T	.080 <T	.070 <T	.060 <T	.060 <T	.060 <T	.060 <T	.060 <T
1991 SEP	.350 <T	BOL	BOL	BOL	BOL	BOL	BOL	BOL	BOL
1991 OCT	.500 <T	BOL	.060 <T	.130 <T	.110 <T	.130 <T	.170 <T	.170 <T	.170 <T
1991 DEC	.670	.140 <T	.090 <T	.130 <T	.150 <T	.130 <T	.150 <T	.150 <T	.150 <T
1992 FEB	.420 <T	.100 <T	.090 <T	.090 <T	.090 <T	.090 <T	.090 <T	.090 <T	.090 <T
1992 MAY	.450 <T	.120 <T	.080 <T	.080 <T	.080 <T	.080 <T	.080 <T	.080 <T	.080 <T
1992 JUL	.370 <T	.070 <T	.310 <T	.380 <T	.380 <T	.380 <T	.380 <T	.380 <T	.380 <T
1992 OCT	.830	.420 <T	.420 <T	.420 <T	.420 <T	.420 <T	.420 <T	.420 <T	.420 <T
1992 NOV	.450 <T	.100 <T	.150 <T	.150 <T	.150 <T	.150 <T	.150 <T	.150 <T	.150 <T
1992 DEC									
VANADIUM (UG/L)		DET'N LIMIT = 0.05				GUIDELINE = N/A			
1991 JAN	.480 <T	2.600	2.500	2.600	1.900	2.600	1.900	1.400	1.400
1991 FEB	.390 <T	2.600	2.500	2.400	1.500	2.400	1.500	1.300	1.300
1991 MAR	.430 <T	2.100	1.900	2.100	1.400	2.100	1.400	1.400	1.400
1991 APR	.190 <T	1.000	1.100	1.200		1.200			
1991 MAY	2.300	2.300	2.400	2.300	1.900	2.300	1.900	1.800	1.800
1991 JUN	1.600	2.600	2.500	2.500	1.500	2.500	1.500	2.000	2.000
1991 SEP	1.000	2.300	1.900	1.700	1.100	1.700	1.100	1.000	1.000
1991 OCT	.670	1.600	1.500	1.600	.840	1.600	.840	.640	.640
1991 DEC	.330 <T	1.800	1.500	2.000	.860	2.000	.860	.740	.740
1992 FEB	.670	1.700	1.400	2.000		2.000			
1992 MAY	1.100	2.500			1.700		1.700	1.700	1.700
1992 JUL	.820	1.800	2.000			1.900			
1992 OCT	.260 <T	1.500	1.900	1.800		1.800			
1992 NOV	.540	1.800							
1992 DEC			1.800	1.800		1.800			

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT. FREE FLOW	DIST. SYSTEM BIRCH CT. STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
METALS					
ZINC (UG/L)		DET'N LIMIT = 0.20	GUIDELINE = 5000 (A3)		
1991 JAN	7.400	16.000	5.500	47.000	8.300
1991 FEB	60.000	5.100	6.500	88.000	39.000
1991 MAR	4.500	3.500	3.900	67.000	6.400
1991 APR	3.500	4.500	13.000	81.000	-
1991 MAY	12.000	7.900	8.500	65.000	12.000
1991 JUN	4.800	5.900	6.600	59.000	19.000
1991 SEP	3.300	6.000	12.000	180.000	15.000
1991 OCT	1.800 <T	2.900	4.100	23.000	7.700
1991 DEC	3.000	3.700	140.000	64.000	5.500
1992 FEB	3.400	3.700	-	79.000	-
1992 MAY	3.200	4.700	5.900	9.800	-
1992 JUL	4.000	4.200	3.600	39.000	-
1992 OCT	1.700 <T	3.300	-	-	-
1992 NOV	4.200	5.900	-	-	-
1992 DEC	-	-	8.400	36.000	-

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT FREE FLOW	DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
CHLORODROMATICS					
HEXACHLOROBUTADIENE (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = 450 (D4)	
39 SAMPLES	BDL	BDL			BDL
123-TRICHLOROBENZENE (NG/L)		DET'N LIMIT = 5.000		GUIDELINE = N/A	
39 SAMPLES	BDL	BDL			BDL
1234-TETCHLOROBENZENE (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = N/A	
39 SAMPLES	BDL	BDL			BDL
1235-TETCHLOROBENZENE (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = N/A	
39 SAMPLES	BDL	BDL			BDL
124-TRICHLOROBENZENE (NG/L)		DET'N LIMIT = 5.000		GUIDELINE = 10000 (1)	
39 SAMPLES	BDL	BDL			BDL
1245-TETCHLOROBENZENE (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = 38000 (D4)	
39 SAMPLES	BDL	BDL			BDL
135-TRICHLOROBENZENE (NG/L)		DET'N LIMIT = 5.000		GUIDELINE = N/A	
39 SAMPLES	BDL	BDL			BDL
HEXACHLOROBENZENE (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = 10 (C1)	
39 SAMPLES	BDL	BDL			BDL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM FREE FLOW	DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
CHLOROAROMATICS					
HEXACHLOROETHANE (NG/L)		DET'N LIMIT = 1,000		GUIDELINE = 1900 (04)	
1991 JAN	BOL	BOL		BOL	
1991 FEB	BOL	BOL		BOL	
1991 MAR	BOL	3,000 <T		BOL	
1991 APR	1,000 AIP			BOL	
1991 MAY	BOL	IIS		BOL	
1991 JUN	IAW	IQU		IAW	
1991 SEP	IAW	IAW		IAW	
1991 OCT					
1991 DEC	BOL	2,000 <T		2,000 <T	
1992 FEB	BOL	8,000 <T		BOL	
1992 MAY	BOL	3,000 <T		3,000 <T	
1992 JUL	BOL				
1992 OCT	BOL				
1992 NOV	BOL				
1992 DEC					
OCTACHLOROSTYRENE (NG/L)		DET'N LIMIT = 1,000		GUIDELINE = N/A	
39 SAMPLES	BOL	BOL		BOL	
PENTACHLOROBENZENE (NG/L)		DET'N LIMIT = 1,000		GUIDELINE = 74000 (04)	
1991 JAN	BOL	BOL		BOL	
1991 FEB	BOL	BOL		BOL	
1991 MAR	BOL	BOL		BOL	
1991 APR	BOL	IIS		BOL	
1991 MAY	BOL	4,000 <T		BOL	
1991 JUN	IAW	IQU		IAW	
1991 SEP	IAW	IAW		IAW	
1991 OCT	BOL				
1991 DEC	BOL	IRE		IRE	
1992 FEB	BOL	BOL		BOL	
1992 MAY	BOL	BOL		BOL	
1992 JUL	BOL	BOL		BOL	
1992 OCT	BOL	BOL		BOL	
1992 NOV	BOL	BOL		BOL	
1992 DEC	BOL	BOL		BOL	

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT FREE FLOW	DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
CHLOROPAROMATICS					
236-TRICHLOROTOLUENE (NG/L)		DET'N LIMIT = 5.000		GUIDELINE = N/A	
1991 JAN	BDL	BDL	BDL	BDL	BDL
1991 FEB	BDL	BDL	BDL	BDL	BDL
1991 MAR	BDL	BDL	BDL	BDL	BDL
1991 APR	BDL	BDL	BDL	BDL	BDL
1991 MAY	BDL	BDL	BDL	BDL	BDL
1991 JUN	BDL	BDL	BDL	BDL	BDL
1991 SEP	BDL	BDL	BDL	BDL	BDL
1991 OCT	BDL	BDL	BDL	BDL	BDL
1991 DEC	BDL	BDL	BDL	BDL	BDL
1992 FEB	BDL	BDL	BDL	BDL	BDL
1992 MAY	BDL	BDL	BDL	BDL	BDL
1992 JUL	BDL	BDL	BDL	BDL	BDL
1992 OCT	BDL	BDL	BDL	BDL	BDL
1992 NOV	BDL	BDL	BDL	BDL	BDL
1992 DEC	BDL	BDL	BDL	BDL	BDL
245-TRICHLOROTOLUENE (NG/L)		DET'N LIMIT = 5.000		GUIDELINE = N/A	
39 SAMPLES	BDL	BDL	BDL	BDL	BDL
26A-TRICHLOROTOLUENE (NG/L)		DET'N LIMIT = 5.000		GUIDELINE = N/A	
39 SAMPLES	BDL	BDL	BDL	BDL	BDL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT FREE FLOW	DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
CHLOROPHENOLS					
234-TRICHLOROPHENOL (NG/L)					
6 SAMPLES	BDL			DET*N LIMIT = 100.0	GUIDELINE = N/A
2345-TETACHLOROPHENOL (NG/L)					
6 SAMPLES	BDL			DET*N LIMIT = 20.0	GUIDELINE = N/A
2356-TETACHLOROPHENOL (NG/L)					
6 SAMPLES	BDL			DET*N LIMIT = 10.0	GUIDELINE = N/A
245-TRICHLOROPHENOL (NG/L)					
6 SAMPLES	BDL			DET*N LIMIT = 100.0	GUIDELINE = 2600000 (04)
246-TRICHLOROPHENOL (NG/L)					
1991 JUN	BDL			DET*N LIMIT = 20.0	GUIDELINE = 5000 (A1)
1991 DEC	BDL				
1992 MAY	BDL				
PENTACHLOROPHENOL (NG/L)					
1991 JUN	BDL			DET*N LIMIT = 10.00	GUIDELINE = 60000 (A1)
1991 DEC	BDL				
1992 MAY	BDL				

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT FREE FLOW	DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
PESTICIDES AND PCB					
ALDRIN (NG/L)		DET'N LIMIT = 1.000		GUIDELINE = 700 (A1)	
39 SAMPLES	BDL	BDL		BDL	
ALPHA BHC (NG/L)					
	BDL	DET'N LIMIT = 1.000		GUIDELINE = 700 (G)	
1991 JAN	BDL	BDL		BDL	
1991 FEB	1.000 <T	1.000 <T		BDL	
1991 MAR	BDL	BDL		1.000 <T	
1991 APR	BDL	2.000 <T	ITS		
1991 MAY	BDL	2.000 <T	IQU		
1991 JUN	IAW	IAW	IAW		
1991 SEP	IAW	IAW	IAW		
1991 OCT	BDL	IRE		BDL	
1991 DEC	BDL	1.000 <T		BDL	
1992 FEB	1.000 <T	BDL		BDL	
1992 MAY	BDL			BDL	
1992 JUL	BDL	BDL			
1992 OCT	BDL	1.000 <T			
1992 NOV	BDL	BDL			
1992 DEC		1.000 <T			
BETA BHC (NG/L)		DET'N LIMIT = 1.00		GUIDELINE = 300 (G)	
39 SAMPLES	BDL	BDL		BDL	
LINDANE (GAMMA BHC) (NG/L)					
		DET'N LIMIT = 1.000		GUIDELINE = 4000 (A1)	
39 SAMPLES	BDL	BDL		BDL	
ALPHA CHLORDANE (NG/L)					
		DET'N LIMIT = 2.000		GUIDELINE = 7000 (A1)	
39 SAMPLES	BDL	BDL		BDL	
GAMMA CHLORDANE (NG/L)					
		DET'N LIMIT = 2.00		GUIDELINE = 7000 (A1)	
39 SAMPLES	BDL	BDL		BDL	
DIELDRIN (NG/L)					
		DET'N LIMIT = 2.00		GUIDELINE = 700 (A1)	
39 SAMPLES	BDL	BDL		BDL	
METHOXYCHLOR (NG/L)					
		DET'N LIMIT = 5.0		GUIDELINE = 900000 (A1)	
39 SAMPLES	BDL	BDL		BDL	

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT FREE FLOW	DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
PESTICIDES AND PCB					
ENDOSULFAN 1 (NG/L)	)	DET'N LIMIT = 2.00		GUIDELINE = 74000 (04)	
39 SAMPLES	BOL	BOL		BOL	
ENDOSULFAN 11 (NG/L)	)	DET'N LIMIT = 5,000		GUIDELINE = 74000 (04)	
39 SAMPLES	BOL	BOL		BOL	
ENDRIN (NG/L)	)	DET'N LIMIT = 5,000		GUIDELINE = 1600 (03)	
39 SAMPLES	BOL	BOL		BOL	
ENDOSULFAN SULPHATE (NG/L)	)	DET'N LIMIT = 5,00		GUIDELINE = N/A	
39 SAMPLES	BOL	BOL		BOL	
HEPTACHLOR EPOXIDE (NG/L)	)	DET'N LIMIT = 1,000		GUIDELINE = 3000 (A1)	
29 SAMPLES	BOL	BOL		BOL	
HEPTACHLOR (NG/L)	)	DET'N LIMIT = 1,000		GUIDELINE = 3000 (A1)	
39 SAMPLES	BOL	BOL		BOL	
MIREX (NG/L)	)	DET'N LIMIT = 5,000		GUIDELINE = N/A	
39 SAMPLES	BOL	BOL		BOL	
OXYCHLORDANE (NG/L)	)	DET'N LIMIT = 2,000		GUIDELINE = N/A	
39 SAMPLES	BOL	BOL		BOL	
O,P-DDT (NG/L)	)	DET'N LIMIT = 5,000		GUIDELINE = 30000 (A1)	
39 SAMPLES	BOL	BOL		BOL	
PCB (NG/L)	)	DET'N LIMIT = 20.00		GUIDELINE = 3000 (A2)	
39 SAMPLES	BOL	BOL		BOL	
P,P'-DDD (NG/L)	)	DET'N LIMIT = 5,000		GUIDELINE = 30000 (A1)	
39 SAMPLES	BOL	BOL		BOL	
P,P'-DDE (NG/L)	)	DET'N LIMIT = 1,000		GUIDELINE = 30000 (A1)	
39 SAMPLES	BOL	BOL		BOL	

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT FREE FLOW	DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
PESTICIDES AND PCB					
P,P-DDT (NG/L)		DET'N LIMIT = 5.000		GUIDELINE = 30000 (A1)	
39 SAMPLES	BDL	BDL			BDL

TOXAPHENE (NG/L)		DET'N LIMIT = 500.0		GUIDELINE = 5000 (A1)	
31 SAMPLES	BDL	BDL			BDL

AMETRINE (NG/L)		DET'N LIMIT = 50.0		GUIDELINE = 300000 (D3)	
21 SAMPLES	BDL				

ATRAZINE (NG/L)		DET'N LIMIT = 50.0		GUIDELINE = 60000 (A2)	
1991 JAN	BDL				
1991 FEB	BDL				
1991 MAR	BDL				
1991 APR	BDL				
1991 MAY	90.000 <T				
1991 JUN	1AW				
1991 SEP	1AW				
1991 OCT	1AW				
1991 DEC	BDL				
1992 FEB	90.000 <T				
1992 MAY	BDL				
1992 JUL	BDL				
1992 OCT	60.000 <T				
1992 NOV	BDL				

ATRAZONE (NG/L)		DET'N LIMIT = 50.0		GUIDELINE = N/A	
19 SAMPLES	BDL				

CYANAZINE (BLADEX) (NG/L)		DET'N LIMIT = 100.0		GUIDELINE = 10000 (A2)	
21 SAMPLES	BDL				

DESETHYL ATRAZINE (NG/L)		DET'N LIMIT = 200.0		GUIDELINE = 60000 (A2)	
21 SAMPLES	BDL				

DESETHYL SIMAZINE (NG/L)		DET'N LIMIT = 200.0		GUIDELINE = 10000 (A2)	
21 SAMPLES	BDL				

PROMETONE (NG/L)		DET'N LIMIT = 50.000		GUIDELINE = 52500 (D3)	
21 SAMPLES	BDL				

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT FREE FLOW	DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
PESTICIDES AND PCB					
PROPAGINE (NG/L)		DET'N LIMIT = 50.000	GUIDELINE = 700000 (03)		
21 SAMPLES	BDL				
PROMETRYNE (NG/L)		DET'N LIMIT = 50.000	GUIDELINE = 1000 (A2)		
21 SAMPLES	BDL				
METRIBUZIN (SENCOR) (NG/L)		DET'N LIMIT = 100.0	GUIDELINE = 80000 (A1)		
21 SAMPLES	BDL				
SIMAZINE (NG/L)		DET'N LIMIT = 50.00	GUIDELINE = 10000 (A2)		
21 SAMPLES	BDL				
ALACHLOR (LASSO) (NG/L)		DET'N LIMIT = 500.0	GUIDELINE = 5000 (A2)		
21 SAMPLES	BDL				
METOLACHLOR (NG/L)		DET'N LIMIT = 500.0	GUIDELINE = 50000 (A2)		
21 SAMPLES	BDL				
HEXACHLOROCYCLOPENTADIEN (NG/L)					
1991 JAN	BDL	300.000	15.000 <T	60.000	
1991 FEB	BDL	BDL	BDL	12.000 <T	
1991 MAR	BDL	BDL	280.000	94.000	
1991 APR	BDL	BDL	ITS		
1991 MAY	BDL	25.000 <T	IQU	15.000 <T	
1991 JUN	IAW	IAW	IAW	IAW	
1991 SEP	IAW	IAW	IAW	IAW	
1991 OCT	BDL	180.000	IRE	12.000 <T	
1991 DEC	BDL	185.000	127.000	5.000 <T	
1992 FEB	BDL	IQU	IQU		
1992 MAY	IQU	IQU	IQU	IQU	
1992 JUL	IQU	IQU	IQU		
1992 OCT	IQU	IQU	IQU		
1992 NOV	IQU	IQU	IQU		
1992 DEC	IQU	IQU	IQU		

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT FREE FLOW	DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
PHENOLICS					
PHENOLICS (UG/L)		DET'N LIMIT =	0.2	GUIDELINE =	N/A
1991 JAN	.800 <T	.800 <T			
1991 FEB	BDL	.800 <T			
1991 MAR	.800 <T	.800 <T			
1991 APR	.400 <T	.400 <T			
1991 MAY	.400 <T	.800 <T			
1991 JUN	BDL	.200 <T			
1991 SEP	1,600	1,600			
1991 OCT	.800 <T	.800 <T			
1991 DEC	BDL	.400 <T			
1992 FEB	.400 <T	.600 <T			
1992 MAY	.400 <T	.600 <T			
1992 JUL	.400 <T	.400 <T			
1992 OCT	BDL	BDL			
1992 NOV	BDL	.400 <T			

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM FREE FLOW	DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
POLYAROMATIC HYDROCARBONS					
BENZO(A) PYRENE (NG/L)		DET'N LIMIT = 5.0		GUIDELINE = 10 (A1)	
19 SAMPLES	BDL	BDL		BDL	
BENZO(G,H,I) PERYLENE (NG/L)		DET'N LIMIT = 20.0		GUIDELINE = N/A	
19 SAMPLES	BDL	BDL		BDL	
DIBENZO(A,H) ANTHRAC (NG/L)		DET'N LIMIT = 10.0		GUIDELINE = N/A	
19 SAMPLES	BDL	BDL		BDL	
INDENO(1,2,3-C,D) PY (NG/L)		DET'N LIMIT = 20.0		GUIDELINE = N/A	
19 SAMPLES	BDL	BDL		BDL	
BENZO(B) CHRYSENE (NG/L)		DET'N LIMIT = 2.0		GUIDELINE = N/A	
19 SAMPLES	BDL	BDL		BDL	
CORONENE (NG/L)		DET'N LIMIT = 10.0		GUIDELINE = N/A	
19 SAMPLES	BDL	BDL		BDL	

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT FREE FLOW	DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
SPECIFIC PESTICIDES					
TOXAPHENE (NG/L)		DET*N LIMIT = 500.0		GUIDELINE = 5000 (A1)	
8 SAMPLES	BDL	BDL			BDL
2,4,5-T (NG/L)		DET*N LIMIT = 50.0		GUIDELINE = 280000 (A1)	
6 SAMPLES	BDL				
2,4-D (NG/L)		DET*N LIMIT = 100.0		GUIDELINE = 100000 (A1)	
6 SAMPLES	BDL				
2,4-DB (NG/L)		DET*N LIMIT = 200.0		GUIDELINE = N/A	
6 SAMPLES	BDL				
2,4-D PROPIONIC ACID (NG/L)		DET*N LIMIT = 100.0		GUIDELINE = N/A	
6 SAMPLES	BDL				
DICAMBA (NG/L)		DET*N LIMIT = 50.0		GUIDELINE = 120000 (A1)	
6 SAMPLES	BDL				
PICHLORAM (NG/L)		DET*N LIMIT = 100.00		GUIDELINE = 190000 (A2)	
1 SAMPLES	INP				
2,4,5-TP (SILVEX) (NG/L)		DET*N LIMIT = 20.00		GUIDELINE = 10000 (A1)	
6 SAMPLES	BDL				
DIAZINON (NG/L)		DET*N LIMIT = 20.0		GUIDELINE = 20000 (A1)	
2 SAMPLES	BDL				
DICHLOROVOS (NG/L)		DET*N LIMIT = 20.0		GUIDELINE = N/A	
2 SAMPLES	BDL				
CHLORPYRIFOS (NG/L)		DET*N LIMIT = 20.0		GUIDELINE = N/A	
2 SAMPLES	BDL				
ETHION (NG/L)		DET*N LIMIT = 20.0		GUIDELINE = 35000 (G)	
2 SAMPLES	BDL				

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM FREE FLOW	DIST. SYSTEM STANDING	DIST. SYSTEM BIRCH CT	DIST. SYSTEM VICTORIA AVE	DIST. SYSTEM STANDING
SPECIFIC PESTICIDES						
MALATHION (NG/L)		DET'N LIMIT = 20.0				GUIDELINE = 190000 (A1)
2 SAMPLES	BDL					
MEVINPHOS (NG/L)		DET'N LIMIT = 20.0				GUIDELINE = N/A
2 SAMPLES	BDL					
METHYL PARATHION (NG/L)		DET'N LIMIT = 50.0				GUIDELINE = 9000 (D3)
2 SAMPLES	BDL					
METHYLTRITHION (NG/L)		DET'N LIMIT = 20.0				GUIDELINE = N/A
2 SAMPLES	BDL					
PARATHION (NG/L)		DET'N LIMIT = 20.0				GUIDELINE = 50000 (A1)
2 SAMPLES	BDL					
PHORATE (NG/L)		DET'N LIMIT = 20.0				GUIDELINE = 2000 (A2)
2 SAMPLES	BDL					
RELDAN (NG/L)		DET'N LIMIT = 20.0				GUIDELINE = N/A
2 SAMPLES	BDL					
RONNEL (NG/L)		DET'N LIMIT = 20.0				GUIDELINE = N/A
2 SAMPLES	BDL					
CARBOFURAN (NG/L)		DET'N LIMIT = 2000.0				GUIDELINE = 90000 (A1)
6 SAMPLES	BDL					
CHLOROPHOM (CIPC) (NG/L)		DET'N LIMIT = 2000.0				GUIDELINE = 350000 (G)
6 SAMPLES	BDL					
DIALLATE (NG/L)		DET'N LIMIT = 2000.0				GUIDELINE = N/A
6 SAMPLES	BDL					
EPTAM (NG/L)		DET'N LIMIT = 2000.0				GUIDELINE = N/A
6 SAMPLES	BDL					

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT FREE FLOW	DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
SPECIFIC PESTICIDES					
IPC (NG/L)		DET'N LIMIT = 2000.0		GUIDELINE = N/A	
6 SAMPLES	BDL	BDL			
PROPOXUR (NG/L)		DET'N LIMIT = 2000.0		GUIDELINE = 140000 (03)	
6 SAMPLES	BDL	BDL			
CARBARYL (NG/L)		DET'N LIMIT = 200.0		GUIDELINE = 90000 (A1)	
6 SAMPLES	BDL	BDL			
BUTYLATE (NG/L)		DET'N LIMIT = 2000.0		GUIDELINE = 245000 (03)	
6 SAMPLES	BDL	BDL			

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT		DIST. SYSTEM BIRCH CT		DIST. SYSTEM VICTORIA AVE		DIST. SYSTEM VICTORIA AVE	
		FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING		
VOLATILES									
) BENZENE (UG/L)									
DET'N LIMIT = 0.05									
GUIDELINE = 5 (A1)									
1991 JAN	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 FEB	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 MAR	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 APR	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 MAY	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 JUN	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 JUL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 SEP	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 OCT	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 NOV	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 DEC	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 JAN	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 FEB	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 MAR	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 APR	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 MAY	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 JUN	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 JUL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 AUG	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 SEP	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 OCT	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 NOV	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 DEC	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
) TOLUENE (UG/L)									
DET'N LIMIT = 0.05									
GUIDELINE = 24 (A3)									
1991 JAN	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 FEB	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 MAR	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 APR	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 MAY	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 JUN	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 JUL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 SEP	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 OCT	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 NOV	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1991 DEC	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 JAN	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 FEB	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 MAR	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 APR	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 MAY	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 JUN	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 JUL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 AUG	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 SEP	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 OCT	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 NOV	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1992 DEC	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT FREE FLOW	DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
VOLATILES					
ETHYLBENZENE (UG/L)		DET'N LIMIT = 0.05		GUIDELINE = 2.4 (A3)	
1991 JAN	BDL	BDL	.	.050 <T	.
1991 FEB	BDL	BDL	.	BDL	.
1991 MAR	BDL	BDL	.	BDL	.
1991 APR	BDL	.050 <T	.	.100 <T	.
1991 MAY	BDL	.050 <T	.	.100 <T	.
1991 JUN	BDL	.150 <T	.	BDL	.
1991 SEP	BDL	.200 <T	.	BDL	.
1991 OCT	BDL	.100 <T	.	BDL	.
1991 DEC	BDL	.100 <T	.	.050 <T	.
1992 FEB	BDL	.100 <T	.	.100 <T	.
1992 MAY	BDL	.150 <T	.	.100 <T	.
1992 JUL	BDL	.200 <T	.	.150 <T	.
1992 OCT	BDL	.150 <T	.	.	.
1992 NOV	BDL	.100 <T	.	.	.
1992 DEC	BDL	.100 <T	.	.	.
P-XYLENE (UG/L)		DET'N LIMIT = 0.10		GUIDELINE = 300 (A3*)	
50 SAMPLES	BDL	BDL	.	BDL	.
M-XYLENE (UG/L)		DET'N LIMIT = 0.10		GUIDELINE = 300 (A3*)	
1991 JAN	BDL	BDL	.	BDL	.
1991 FEB	BDL	BDL	.	BDL	.
1991 MAR	BDL	BDL	.	BDL	.
1991 APR	BDL	.100 <T	.	.100 <T	.
1991 MAY	BDL	.100 <T	.	BDL	.
1991 JUN	BDL	.400 <T	.	BDL	.
1991 SEP	BDL	.500 <T	.	BDL	.
1991 OCT	BDL	.200 <T	.	BDL	.
1991 DEC	BDL	BDL	.	BDL	.
1992 FEB	BDL	BDL	.	BDL	.
1992 MAY	BDL	.100 <T	.	.200 <T	.
1992 JUL	BDL	BDL	.	.	.
1992 OCT	BDL	.100 <T	.	.	.
1992 NOV	BDL	BDL	.	.	.
1992 DEC	BDL	BDL	.	.	.

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM FREE FLOW	DIST. SYSTEM STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
VOLATILES					
O-XYLENE (UG/L)		DET'N LIMIT = 0.05		GUIDELINE = 300 (A3*)	
1991 JAN	BDL	BDL		BDL	
1991 FEB	BDL	BDL		BDL	
1991 MAR	BDL	BDL		BDL	
1991 APR	BDL	.050 <T			
1991 MAY	BDL	.100 <T		BDL	
1991 JUN	BDL	.500		BDL	
1991 SEP	BDL	.550		BDL	
1991 OCT	BDL	.150 <T		BDL	
1991 DEC	BDL	BDL		BDL	
1992 FEB	BDL	.050 <T			
1992 MAY	BDL	.050 <T		.100 <T	
1992 JUL	BDL	BDL			
1992 OCT	BDL	.050 <T			
1992 NOV	BDL				
1992 DEC		BDL			
STYRENE (UG/L)					
		DET'N LIMIT = 0.05		GUIDELINE = 100 (D1)	
1991 JAN	BDL	BDL		.100 <T	
1991 FEB	.050 <T	.050 <T		BDL	
1991 MAR	.050 <T	BDL		BDL	
1991 APR	BDL	.100 <T			
1991 MAY	BDL	.100 <T		.80L	
1991 JUN	BDL	.200 <T		BDL	
1991 SEP	BDL	BDL		BDL	
1991 OCT	BDL	.250 <T		BDL	
1991 DEC	.200 <T	.100 <T		.200 <T	
1992 FEB	BDL	.150 <T			
1992 MAY	BDL	.100 <T		.300 <T	
1992 JUL	BDL	.200 <T			
1992 OCT	BDL	.100 <T			
1992 NOV	BDL				
1992 DEC		.150 <T			
1,1-DICHLOROETHYLENE (UG/L)					
		DET'N LIMIT = 0.100		GUIDELINE = 7 (D1)	
50 SAMPLES	BDL	BDL		BDL	

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT FREE FLOW	DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
VOLATILES					
METHYLENE CHLORIDE (UG/L)		DET'N LIMIT = 0.50		GUIDELINE = 50 (A1)	
1991 JAN	BDL	BDL			BDL
1991 FEB	BDL	BDL			BDL
1991 MAR	BDL	BDL			BDL
1991 APR	BDL	BDL			
1991 MAY	BDL	BDL			BDL
1991 JUN	BDL	BDL			BDL
1991 SEP	BDL	BDL			BDL
1991 OCT	BDL	BDL			BDL
1991 DEC	BDL	BDL			BDL
1992 FEB	BDL	BDL			
1992 MAY	BDL	BDL			BDL
1992 JUL	BDL	BDL			
1992 OCT	BDL	BDL			
1992 NOV	6,500 UCS	4,000 <T			
1992 DEC		4,500 <T			
T12-DICHLOROETHYLENE (UG/L)		DET'N LIMIT = 0.10		GUIDELINE = 70 (O1)	
50 SAMPLES	BDL	BDL			BDL
1,1-DICHLOROETHANE (UG/L)		DET'N LIMIT = 0.100		GUIDELINE = N/A	
50 SAMPLES	BDL	BDL			BDL
CHLOROFORM (UG/L)		DET'N LIMIT = 0.10		GUIDELINE = 350 (A1+)	
1991 JAN	BDL	78,800			
1991 FEB	.100 <T	41,700		40,000	
1991 MAR	.200 <T	103,500		30,600	
1991 APR	BDL	77,800		75,400	
1991 MAY	BDL	141,300			
1991 JUN	BDL	80,900		79,100	
1991 SEP	BDL	86,900		85,000	
1991 OCT	BDL	103,500		72,700	
1991 DEC	.500 <T	124,100		98,000	
1992 FEB	BDL	103,700		81,700	
1992 MAY	BDL	68,000			
1992 JUL	.300 <T	137,700		117,100	
1992 OCT	1,100	130,000			
1992 NOV	BDL	107,400			
1992 DEC	BDL	69,300			
111,TRICHLOROETHANE (UG/L)		DET'N LIMIT = 0.02		GUIDELINE = 200 (O1)	
50 SAMPLES	BDL	BDL			BDL

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM FREE FLOW	DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
VOLATILES					
1,2-DICHLOROETHANE (UG/L)		DET'N LIMIT = 0.05		GUIDELINE = 5 (A1)	
50 SAMPLES	BOL	BOL		BOL	
CARBON TETRACHLORIDE (UG/L)		DET'N LIMIT = 0.20		GUIDELINE = 5 (A1)	
50 SAMPLES	BOL	BOL		BOL	
1,2-DICHLOROPROPANE (UG/L)		DET'N LIMIT = 0.05		GUIDELINE = 5 (O1)	
50 SAMPLES	BOL	BOL		BOL	
TRICHLOROETHYLENE (UG/L)		DET'N LIMIT = 0.10		GUIDELINE = 50 (A1)	
50 SAMPLES	BOL	BOL		BOL	
DICHLOROBROMOMETHANE (UG/L)		DET'N LIMIT = 0.05		GUIDELINE = 350 (A1+)	
1991 JAN	BOL	8.950	4.800	4.400	
1991 FEB	BOL	6.150	3.100	3.550	
1991 MAR	BOL	6.550	3.600	4.300	
1991 APR	BOL	6.850	4.150		
1991 MAY	BOL	7.600	6.800	7.100	
1991 JUN	BOL	10.700	9.450	9.300	
1991 SEP	BOL	10.550	7.700	8.200	
1991 OCT	BOL	11.900	10.800	9.500	
1991 DEC	BOL	9.950	7.050	8.200	
1992 FEB	BOL	11.600	6.750		
1992 MAY	BOL	11.100		9.700	
1992 JUL	BOL	13.800			
1992 OCT	BOL	13.200	11.550		
1992 NOV	BOL	10.150			
1992 DEC	BOL		8.800		
112-TRICHLOROETHANE (UG/L)		DET'N LIMIT = 0.05		GUIDELINE = 0.6 (O4)	
50 SAMPLES	BOL	BOL		BOL	

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT FREE FLOW	DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
VOLATILES					
CHLORODIBROMOMETHANE (UG/L)		DET'N LIMIT = 0.10		GUIDELINE = 350 (A1+)	
1991 JAN	BDL	.500 <T	.400 <T	.400 <T	.
1991 FEB	BDL	.300 <T	.200 <T	.200 <T	.
1991 MAR	BDL	.200 <T	.200 <T	.300 <T	.
1991 APR	BDL	.300 <T	.200 <T	.	.
1991 MAY	BDL	.300 <T	.300 <T	.300 <T	.
1991 JUN	BDL	.700 <T	.600 <T	.500 <T	.
1991 SEP	BDL	.600 <T	.500 <T	.500 <T	.
1991 OCT	BDL	.500 <T	.500 <T	.400 <T	.
1991 DEC	BDL	.400 <T	.300 <T	.400 <T	.
1992 FEB	BDL	1.100	.500 <T	.	.
1992 MAY	BDL	.500 <T	.	.700 <T	.
1992 JUL	BDL	.800 <T	.	.	.
1992 OCT	BDL	.800 <T	.600 <T	.	.
1992 NOV	BDL	.600 <T	.	.	.
1992 DEC	BDL	.500 <T	.	.	.
TETRACHLOROETHYLENE (UG/L)		DET'N LIMIT = 0.05		GUIDELINE = 65 (A5)	
1991 JAN	BDL	BDL	.	BDL	.
1991 FEB	BDL	BDL	.	BDL	.
1991 MAR	BDL	BDL	.	BDL	.
1991 APR	BDL	.150 <T	.150 <T	.	.
1991 MAY	BDL	.300 <T	.300 <T	.300 <T	.
1991 JUN	BDL	.150 <T	.150 <T	.150 <T	.
1991 SEP	BDL	.100 <T	.100 <T	.100 <T	.
1991 OCT	BDL	BDL	.	BDL	.
1991 DEC	BDL	BDL	.	BDL	.
1992 FEB	BDL	BDL	.	BDL	.
1992 MAY	BDL	BDL	.	BDL	.
1992 JUL	BDL	.100 <T	.	.	.
1992 OCT	BDL	BDL	.	.	.
1992 NOV	BDL	BDL	.	.	.
1992 DEC	BDL	BDL	.	.	.
BROMOFORM (UG/L)		DET'N LIMIT = 0.20		GUIDELINE = 350 (A1+)	
50 SAMPLES	BDL	BDL	.	BDL	.
1122-TETRACHLOROETHANE (UG/L)		DET'N LIMIT = 0.05		GUIDELINE = 0.17 (D4)	
50 SAMPLES	BDL	BDL	.	BDL	.
VINYL CHLORIDE (UG/L)		DET'N LIMIT = 0.100		GUIDELINE = 2 (D1)	
15 SAMPLES	BDL	BDL	.	BDL	.

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT FREE FLOW	DIST. SYSTEM BIRCH CT STANDING	DIST. SYSTEM VICTORIA AVE FREE FLOW	DIST. SYSTEM VICTORIA AVE STANDING
VOLATILES					
C12-DICHLOROETHYLENE (UG/L)		DET'N LIMIT = 0.100		GUIDELINE = 2 (01)	
15 SAMPLES	BDL	BDL		BDL	
CHLOROBENZENE (UG/L)					
50 SAMPLES	BDL	DET'N LIMIT = 0.10		GUIDELINE = 1510 (03)	
1,4-DICHLOROBENZENE (UG/L)		DET'N LIMIT = 0.10		GUIDELINE = 5 (A1)	
50 SAMPLES	BDL	BDL		BDL	
1,3-DICHLOROBENZENE (UG/L)					
50 SAMPLES	BDL	DET'N LIMIT = 0.10		GUIDELINE = 3750 (03)	
1,2-DICHLOROBENZENE (UG/L)		DET'N LIMIT = 0.05		GUIDELINE = 200 (A1)	
50 SAMPLES	BDL	BDL		BDL	
ETHYLENE DIBROMIDE (UG/L)					
50 SAMPLES	BDL	DET'N LIMIT = 0.05		GUIDELINE = 50 (01)	
TOTL TRIHALOMETHANES (UG/L)					
1991 JAN	BDL	DET'N LIMIT = 0.50		GUIDELINE = 350 (A1)	
1991 FEB	BDL	55.650		44.800	
1991 MAR	BDL	30.850		34.350	
1991 APR	BDL	81.600		79.950	
1991 MAY	BDL	148.400			
1991 JUN	BDL	88.800		86.500	
1991 JUL	BDL	103.350		94.800	
1991 SEP	BDL	80.400		81.400	
1991 OCT	BDL	124.400		107.900	
1991 NOV	BDL	82.150		90.300	
1991 DEC	BDL	52.950		127.500	
1992 JAN	BDL	149.300			
1992 FEB	BDL	146.400			
1992 MAR	BDL	119.550			
1992 APR	BDL	121.400			
1992 MAY	BDL	80.050			
1992 JUN	BDL	77.600			

TABLE 4
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992 LINDSAY WTP

TREATMENT PLANT RAW	TREATMENT PLANT TREATED	DIST. SYSTEM BIRCH CT	DIST. SYSTEM FREE FLOW	DIST. SYSTEM BIRCH CT	DIST. SYSTEM FREE FLOW	DIST. SYSTEM VICTORIA AVE	DIST. SYSTEM VICTORIA AVE
RADIONUCLIDES							
COBALT 60 (BQ/L)							
DET'N LIMIT = 0.70							
GUIDELINE = N/A							
10 SAMPLES	BDL						
CESIUM 134 (BQ/L)							
DET'N LIMIT = 0.70							
GUIDELINE = N/A							
10 SAMPLES	BDL						
CESIUM 137 (BQ/L)							
DET'N LIMIT = 0.70							
GUIDELINE = 50 (A1)							
10 SAMPLES	BDL						
GROSS ALPHA COUNT (BQ/L)							
DET'N LIMIT = 0.04							
GUIDELINE = 0.55 (D1)							
1991 FEB	BDL						
1991 SEP	BDL						
1991 OCT	BDL						
1992 MAY	BDL						
1992 NOV	BDL						
GROSS BETA COUNT (BQ/L)							
DET'N LIMIT = 0.04							
GUIDELINE = N/A							
1991 FEB	BDL						
1991 SEP	BDL						
1991 OCT	BDL						
1992 MAY	BDL						
1992 NOV	BDL						
TRITIUM (BQ/L)							
DET'N LIMIT = 7.00							
GUIDELINE = 40000 (A1)							
1991 FEB	16,000						
1991 SEP	BDL						
1991 OCT	BDL						
1992 MAY	15,000						
1992 NOV	13,000						
IODINE 131 (BQ/L)							
DET'N LIMIT = 0.70							
GUIDELINE = 10 (A1)							
10 SAMPLES	BDL						

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
BACTERIOLOGICAL			
FECAL COLIFORM MEMBRANE FILTRATION	CT/100ML	0	0 (A1)
STANDARD PLATE COUNT MEMBRANE FILT.	CT/ML	0	500/ML (A3)
TOTAL COLIFORM BACKGROUND MF	CT/100ML	0	N/A
TOTAL COLIFORM MEMBRANE FILTRATION	CT/100ML	0	5/100ML (A1)
CHEMISTRY (FLD)			
FIELD COMBINED CHLORINE RESIDUAL	MG/L	0	N/A
FIELD TOTAL CHLORINE RESIDUAL	MG/L	0	N/A
FIELD FREE CHLORINE RESIDUAL	MG/L	0	N/A
FIELD PH	DMNSLESS	N/A	6.5-8.5 (A4)
FIELD TEMPERATURE	DEG.C	N/A	15.0 (A3)
FIELD TURBIDITY	FTU	N/A	1.0 (A1)
CHEMISTRY (LAB)			
ALKALINITY	MG/L	0.20	30-500 (A4)
AMMONIUM TOTAL	MG/L	0.002	0.05 (F2)
CALCIUM	MG/L	0.20	100.0 (F2)
CHLORIDE	MG/L	0.20	250.0 (A3)
COLOUR	TCU	0.50	5.0 (A3)
CONDUCTIVITY	UMHO/CM	1.00	400.0 (F2)
CYANIDE	MG/L	0.001	0.2 (A1)
DISSOLVED ORGANIC CARBON	MG/L	0.10	5.0 (A3)
FLUORIDE	MG/L	0.01	1.5* (A1)
HARDNESS	MG/L	0.50	80-100 (A4)
IONCAL	DMNSLESS	N/A	N/A
LANGELIERS INDEX	DMNSLESS	N/A	N/A
MAGNESIUM	MG/L	0.10	30.0 (F2)
NITRATES (TOTAL)	MG/L	0.005	10.0 (A1)
NITRITE	MG/L	0.001	1.0 (A1)
NITROGEN TOTAL KJELDAHL	MG/L	0.02	N/A
PH	DMNSLESS	N/A	6.5-8.5 (A4)
PHOSPHORUS FIL REACT	MG/L	0.0005	N/A
PHOSPHORUS TOTAL	MG/L	0.002	0.4 (F2)
POTASSIUM	MG/L	0.010	10.0 (F2)
RESIDUE FILTRATE (CALCULATED TDS)	MG/L	N/A	500.0 (A3)
SODIUM	MG/L	0.20	200.0 (A4)
SULPHATE	MG/L	0.20	500.0 (A4)
TURBIDITY	FTU	0.05	1.0 (A1)
* The Maximum Acceptable Concentration (MAC) for <u>naturally occurring fluoride</u> in drinking water is 2.4 mg/L.			
CHLOROAROMATICS			
1,2,3-TRICHLOROBENZENE	NG/L	5.0	N/A
1,2,3,4-TETRACHLOROBENZENE	NG/L	1.0	N/A
1,2,3,5-TETRACHLOROBENZENE	NG/L	1.0	N/A
1,2,4-TRICHLOROBENZENE	NG/L	5.0	10000 (I)
1,2,4,5-TETRACHLOROBENZENE	NG/L	1.0	38000 (D4)
1,3,5-TRICHLOROBENZENE	NG/L	5.0	N/A
2,3,6-TRICHLOROTOLUENE	NG/L	5.0	N/A
2,4,5-TRICHLOROTOLUENE	NG/L	5.0	N/A
2,6A-TRICHLOROTOLUENE	NG/L	5.0	N/A
HEXACHLOROBENZENE (HCB)	NG/L	1.0	10 (C1)
HEXACHLOROBUTADIENE	NG/L	1.0	450 (D4)
HEXACHLOROETHANE	NG/L	1.0	1900 (D4)
OCTACHLOROSTYRENE	NG/L	1.0	N/A
PENTACHLOROBENZENE	NG/L	1.0	74000 (D4)
CHLOROPHENOLS			
2,3,4-TRICHLOROPHENOL	NG/L	100.0	N/A
2,3,4,5-TETRACHLOROPHENOL	NG/L	20.0	N/A
2,3,5,6-TETRACHLOROPHENOL	NG/L	10.0	N/A

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
2,4,5-TRICHLOROPHENOL	NG/L	100.0	2600000 (D4)
2,4,6-TRICHLOROPHENOL	NG/L	20.0	5000 (A1)
PENTACHLOROPHENOL	NG/L	10.0	60000 (A1)
METALS			
ALUMINUM	UG/L	0.10	100 (A4)
ANTIMONY	UG/L	0.05	146 (D4)
ARSENIC	UG/L	0.10	25 (A1)
BARIUM	UG/L	0.05	1000 (A2)
BERYLLIUM	UG/L	0.05	6800 (D4)
BORON	UG/L	2.00	5000 (A1)
CADMIUM	UG/L	0.05	5 (A1)
CHROMIUM	UG/L	0.50	50 (A1)
COBALT	UG/L	0.02	N/A
COPPER	UG/L	0.50	1000 (A3)
IRON	UG/L	6.00	300 (A3)
LEAD	UG/L	0.05	10 (A1)
MANGANESE	UG/L	0.05	50 (A3)
MERCURY	UG/L	0.02	1 (A1)
MOLYBDENUM	UG/L	0.05	N/A
NICKEL	UG/L	0.20	350 (D3)
SELENIUM	UG/L	1.00	10 (A1)
SILVER	UG/L	0.05	N/A
STRONTIUM	UG/L	0.10	N/A
THALLIUM	UG/L	0.05	13 (D4)
TITANIUM	UG/L	0.50	N/A
URANIUM	UG/L	0.05	100 (A1)
VANADIUM	UG/L	0.05	N/A
ZINC	UG/L	0.20	5000 (A3)
POLYNUCLEAR AROMATIC HYDROCARBONS			
ANTHRACENE	NG/L	1.0	N/A
BENZO(A) ANTHRACENE	NG/L	20.0	N/A
BENZO(A) PYRENE	NG/L	5.0	10 (A1)
BENZO(B) CHRYSENE	NG/L	2.0	N/A
BENZO(B) FLUORANTHENE	NG/L	10.0	N/A
BENZO(E) PYRENE	NG/L	50.0	N/A
BENZO(G,H,I) PERYLENE	NG/L	20.0	N/A
BENZO(K) FLUORANTHENE	NG/L	1.0	N/A
CHRYSENE	NG/L	50.0	N/A
CORONENE	NG/L	10.0	N/A
DIBENZO(A,H) ANTHRACENE	NG/L	10.0	N/A
DIMETHYL BENZO(A) ANTHRACENE	NG/L	5.0	N/A
FLUORANTHENE	NG/L	20.0	42000 (D4)
INDENO(1,2,3-C,D) PYRENE	NG/L	20.0	N/A
PERYLENE	NG/L	10.0	N/A
PHENANTHRENE	NG/L	10.0	N/A
PYRENE	NG/L	20.0	N/A
PESTICIDES & PCB			
ALACHLOR (LASSO)	NG/L	500.0	5000 (A2)
ALDRIN	NG/L	1.0	700 (A1)
ALPHA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	700 (G)
ALPHA CHLORDANE	NG/L	2.0	7000 (A1)
AMETRINE	NG/L	50.0	300000 (D3)
ATRATONE	NG/L	50.0	N/A
ATRAZINE	NG/L	50.0	60000 (A2)
DESETHYL ATRAZINE	NG/L	200.0	60000 (A2)
BETA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	300 (G)
CYANAZINE (BLADEX)	NG/L	100.0	10000 (A2)
DIELDRIN	NG/L	2.0	700 (A1)
ENDOSULFAN 1 (THIODAN I)	NG/L	2.0	74000 (D4)
ENDOSULFAN 2 (THIODAN II)	NG/L	5.0	74000 (D4)
ENDOSULFAN SULPHATE (THIODAN SULPHATE)	NG/L	5.0	N/A

TABLE 5
- DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
ENDRIN	NG/L	5.0	1600 (D3)
GAMMA CHLORDANE	NG/L	2.0	7000 (A1)
HEPTACHLOR	NG/L	1.0	3000 (A1)
HEPTACHLOR EPOXIDE	NG/L	1.0	3000 (A1)
HEXACHLOROCYCLOPENTADIENE	NG/L	5.0	206000 (D4)
LINDANE (GAMMA BHC)	NG/L	1.0	4000 (A1)
METHOXYCHLOR	NG/L	5.0	900000 (A1)
METOLACHLOR	NG/L	500.0	50000 (A2)
METRIBUZIN (SENCOR)	NG/L	100.0	80000 (A1)
MIREX	NG/L	5.0	N/A
P,P-DDD	NG/L	5.0	30000 (A1)
O,P-DDT	NG/L	5.0	30000 (A1)
P,P-DDT	NG/L	5.0	30000 (A1)
P,P-DDE	NG/L	1.0	30000 (A1)
OXYCHLORDANE	NG/L	2.0	N/A
PCB	NG/L	20.0	3000 (A2)
PROMETONE	NG/L	50.0	52500 (D3)
PROMETRYNE	NG/L	50.0	1000 (A2)
PROPACINE	NG/L	50.0	700000 (D3)
SIMAZINE	NG/L	50.0	10000 (A2)
DESETHYL SIMAZINE	NG/L	200.0	10000 (A2)
TOXAPHENE	NG/L	500.0	5000 (A1)
PHENOLICS			
PHENOLICS (UNFILTERED REACTIVE)	UG/L	0.2	N/A
SPECIFIC PESTICIDES			
2,4 D PROPIONIC ACID	NG/L	100.0	N/A
2,4,5-TRICHLOROPHENOXY ACETIC ACID	NG/L	50.0	280000 (A1)
2,4-DICHLOROBUTYRIC ACID (2,4-D)	NG/L	100.0	100000 (A1)
2,4-DICHLOROPHENOXYBUTYRIC ACID (2,4-DB)	NG/L	200.0	N/A
2,4,5-TP (SILVEX)	NG/L	20.0	10000 (A1)
BUTYLATE (SUTAN)	NG/L	2000.0	245000 (D3)
CARBARYL (SEVIN)	NG/L	200.0	90000 (A1)
CARBOFURAN	NG/L	2000.0	90000 (A1)
CHLORPROPHAM (CIPC)	NG/L	2000.0	350000 (G)
CHLORPYRIFOS (DURSBAN)	NG/L	20.0	N/A
DIALATE	NG/L	2000.0	N/A
DIAZINON	NG/L	20.0	20000 (A1)
DICAMBA	NG/L	50.0	120000 (A1)
DICHLOROVOS	NG/L	20.0	N/A
EPTAM	NG/L	2000.0	N/A
ETHION	NG/L	20.0	35000 (G)
IPC	NG/L	2000.0	N/A
MALATHION	NG/L	20.0	190000 (A1)
METHYL PARATHION	NG/L	50.0	9000 (D3)
METHYLTRITHION	NG/L	20.0	N/A
MEVINPHOS	NG/L	20.0	N/A
PARATHION	NG/L	20.0	50000 (A1)
PHORATE (THIMET)	NG/L	20.0	2000 (A2)
PICHLORAM	NG/L	100.0	190000 (A2)
PROPOXUR (BAYGON)	NG/L	2000.0	140000 (D3)
RELDAN	NG/L	20.0	N/A
RONNEL	NG/L	20.0	N/A
VOLATILES			
1,1-DICHLOROETHANE	UG/L	0.10	N/A
1,1-DICHLOROETHYLENE	UG/L	0.10	7 (D1)
1,2-DICHLOROBENZENE	UG/L	0.05	200 (A1)
1,2-DICHLOROETHANE	UG/L	0.05	5 (A1)
1,2-DICHLOROPROPANE	UG/L	0.05	5 (D1)
1,3-DICHLOROBENZENE	UG/L	0.10	3750 (D3)
1,4-DICHLOROBENZENE	UG/L	0.10	5 (A1)
1,1,1-TRICHLOROETHANE	UG/L	0.02	200 (D1)
1,1,2-TRICHLOROETHANE	UG/L	0.05	0.6 (D4)
1,1,2,2-TETRACHLOROETHANE	UG/L	0.05	0.17 (D4)

TABLE 5
DRINKING WATER SURVEILLANCE PROGRAM 1991 AND 1992

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
BENZENE	UG/L	0.05	5 (A1)
BROMOFORM	UG/L	0.20	350 (A1+)
CARBON TETRACHLORIDE	UG/L	0.20	5 (A1)
CHLOROBENZENE	UG/L	0.10	1510 (D3)
CHLOROETHANETHANETHANE	UG/L	0.10	350 (A1+)
CHLOROFORM	UG/L	0.10	350 (A1+)
CIS 1,2-DICHLOROETHYLENE	UG/L	0.10	70 (D1)
DICHLOROBROMOMETHANE	UG/L	0.05	350 (A1+)
ETHYLENE DIBROMIDE	UG/L	0.05	50 (D1)
ETHYLBENZENE	UG/L	0.05	2.4 (A3)
M-XYLENE	UG/L	0.10	300 (A3*)
METHYLENE CHLORIDE	UG/L	0.50	50 (A1)
O-XYLENE	UG/L	0.05	300 (A3*)
P-XYLENE	UG/L	0.10	300 (A3*)
STYRENE	UG/L	0.05	100 (D1)
TETRACHLOROETHYLENE	UG/L	0.05	65 (A5)
TRANS 1,2-DICHLOROETHYLENE	UG/L	0.10	70 (D1)
TOLUENE	UG/L	0.05	24 (A3)
TOTAL TRIHALOMETHANES	UG/L	0.50	350 (A1)
TRICHLOROETHYLENE	UG/L	0.10	50 (A1)
VINYL CHLORIDE	UG/L	0.10	2 (D1)
RADIONUCLIDES			
TRITIUM	BQ/L	7.0	40000 (A1)
GROSS ALPHA COUNT	BQ/L	0.04	0.55# (D1)
GROSS BETA COUNT	BQ/L	0.04	N/A
COBALT 60	BQ/L	0.70	N/A
CESIUM 134	BQ/L	0.70	N/A
CESIUM 137	BQ/L	0.70	50 (A1)
IODINE 131	BQ/L	0.70	10 (A1)

Equal to 15.0 Picocuries/litre

Appendix A

DRINKING WATER SURVEILLANCE PROGRAM PROGRAM DESCRIPTION

The Drinking Water Surveillance Program (DWSP) for Ontario monitors drinking water quality at municipal water supply systems. The DWSP Database Management System provides a computerized drinking water quality information system for the supplies monitored. The objectives of the program are to provide:

- immediate, reliable, current information on drinking water quality;
- a flagging mechanism for guideline exceedance;
- a definition of contaminant levels and trends;
- a comprehensive background for remedial action;
- a framework for assessment of new contaminants; and
- an indication of treatment efficiency of plant processes.

PROGRAM

The DWSP officially began in April 1986 and is designed to eventually include all municipal water supplies in Ontario. In 1992, 109 systems were being monitored. Water supply locations have been prioritized for surveillance based primarily on criteria such as population density, probability of contamination and geographical location.

An ongoing assessment of future monitoring requirements at each location will be made. Monitoring will continue at the initial locations at an appropriate level and further locations will be phased into the program as resources permit.

A major goal of the program is to collect valid water quality data in context with plant operational characteristics at the time of sampling. As soon as sufficient data have been accumulated and analyzed, both the frequency of sampling and the range of parameters may be adjusted accordingly.

Assessments are carried out at all locations prior to initial sampling, in order to acquire complete plant process and distribution system details and to designate (and retrofit if necessary) all sampling systems and locations. This ensures that the sampled water is a reflection of the water itself.

Samples are taken of raw (ambient water) and treated water at the treatment plant and of consumer's tap water in the distribution system. In order to determine possible effects of distribution on water quality, both standing and free flow water in old and new sections of the distribution system are sampled. Sampling is carried out by operational personnel who have been trained in applicable procedures.

Comprehensive standardized procedures and field test kits are supplied to sampling personnel. This ensures that samples are taken and handled according to standard protocols and that field testing will supply reliable data. All field and laboratory analyses are carried out using "approved documented procedures". Most laboratory analyses are carried out by the Ministry of Environment and Energy (MOEE), Laboratory Services Branch. Radionuclides are analyzed by the Ministry of Labour.

DATA REPORTING MECHANISM

When the analytical results are transferred from the MOEE laboratory into the DWSP system, printouts of the completed analyses are sent to the MOEE District Officer, the appropriate operational staff and are also retained by the DWSP unit.

PROGRAM INPUTS AND OUTPUTS

There are four major inputs and four major outputs in the program.

Program Input - Plant and Distribution System Description

The system description includes plant specific non-analytical information acquired through a questionnaire and an initial plant visit. During the initial assessment of the plant and distribution system, questionnaire content is verified and missing information added. It is intended that all data be kept current with scheduled annual updates.

The Plant and Distribution System Description consists of the following seven components:

1. PROCESS COMPONENT INVENTORY

All physical and chemical processes to which the water is subjected, from the intake pipe to the consumers' tap (where possible), are documented. These include: process type, general description of physical structures, material types, sizes, and retention time for each process within the plant. The processes may be as simple as transmission or as complex as carbon adsorption.

2. TREATMENT CHEMICALS

Chemicals used in the treatment processes, their function, application point, supplier and brand-name are recorded. Chemical dosages applied on the day of sampling are recorded in DWSP.

3. PROCESS CONTROL MEASUREMENTS

Documentation of in-plant monitoring of process parameters (eg. turbidity, chlorine residuals, pH, aluminum residuals) including methods used, monitoring locations and frequency is contained in this section. Except for the recorded Field Data, in-plant monitoring results are not retained in DWSP but are retained by the water treatment plant personnel.

4. DESIGN FLOW AND RETENTION TIME

Hydraulic capacity, designed and actual, is noted here. Retention time (the time that a block of water is retained in the plant) is also noted. Maximum, minimum and average flow, as well as a record of the flow rate on the day of sampling, are recorded in DWSP.

5. DISTRIBUTION SYSTEM DESCRIPTION

This area includes the storage and transmission characteristics of the distribution system after the water leaves the plant.

6. SAMPLING SYSTEM

Each plant is assessed for its adequacy in terms of the sampling of bacteriological, organic and inorganic parameters. Prime considerations in the assessment and design of the sampling system are:

- i/ the sample is an accurate representation of the actual water condition, eg. raw water has had no chemical treatment;
- ii/ the water being sampled is not being modified by the sampling system;
- iii/ the sample tap must be in a clean area of the plant, preferably a lab area; and
- iv/ the sample lines must be organically inert (no plastic, ideally stainless steel).

It is imperative that the sampled water be a reflection not of the sampling system but of the water itself.

The sampling system documentation includes: origin of the water; date sampling was initiated; size, length and material type (intake, discharge and tap); pump characteristics (model, type, capacity); and flow rate.

7. PERSONNEL

This section contains the names, addresses and phone numbers of current plant management and operational staff, distribution system management and operational staff, Medical Officer of Health and appropriate MOEE personnel associated with the plant.

Program Input - Field Data

The second major input to DWSP is field data. Field data is collected at the plant and from the distribution system sites on the day of sampling. Field data consists of general operating conditions and the results of testing for field parameters. General operating conditions include chemicals used, dosages, flow and retention time on the day of sampling, as well as, monthly maximum, minimum and average flows. Field parameters include turbidity, chlorine residuals (free, combined and total), temperature and pH. These parameters are analyzed according to standardized DWSP protocols to allow for interplant comparison.

Program Input - Laboratory Analytical Data

The third major input to DWSP is Laboratory Analytical Data. Samples gathered from the raw, treated and distribution sampling sites are analyzed for the presence of approximately 180 parameters at a frequency of two to twelve times per year. Sixty-five percent of the parameters are organic. Parameters measured may have health or aesthetic implications when present in drinking water. Many of the parameters may be used in the treatment process or may be treatment by-products. Due to the nature of certain analytical instruments, parameters may be measured in a "scan" producing some results for parameters that are not on the DWSP priority list, but which may be of interest. The majority of parameters are measured on a routine basis. Those that are technically more difficult and/or costly to analyze, however, are done less frequently. These include Specific Pesticides and Chlorophenols.

Although the parameter list is extensive, additional parameters with the potential to cause health or aesthetic related problems may be added provided reliable analytical and sampling methods exist.

All laboratory generated data is derived from standardized, documented analytical protocols. The analytical method is an integral part of the data and as methods change, notation will be made and comparison data documented.

Program Input - Parameter Reference Information

The fourth major input to DWSP is Parameter Reference Information. This is a catalogue of information for each substance analyzed on DWSP. It includes parameter name and aliases, physical and chemical properties, basic toxicology, world-wide health limits, treatment methods and uses. The Parameter Reference Information is computerized and can be accessed through the Query function of the DWSP database. An example is shown in figure 1.

Program output - Query

All DWSP information is easily accessed through the Query function, therefore, anything from addresses of plant personnel to complete water quality information for a plant's water supply is instantly available. The DWSP computer system makes relatively complex inquiries manageable. A personal password allowing access into the DWSP query mode in all MOEE offices is being developed by the DWSP group.

Program Output - Action Alerts

Drinking Water quality in Ontario is evaluated against provincial objectives as outlined in the Ontario Drinking Water Objectives publication. Should the reported level of a substance in treated water exceed the Ontario Drinking Water Objective, an "Action Alert" requiring resampling and confirmation is issued. This assures that operational staff, health authorities and the public are notified as soon as possible of the confirmation of an exceedance and remedial action taken. This report supplies a history of the occurrence of past exceedances at the plant plus a historical summary on the parameter of concern.

In the absence of Ontario Drinking Water Objectives, guidelines/limits from other agencies are used. The Parameter Listing System, published by MOEE (ISBN 0-7729-4461-X), catalogues and keeps current guidelines for 650 parameters from agencies throughout the world. If these guidelines are exceeded, the results are flagged and evaluated by DWSP personnel. An "Action Alert" will be issued if warranted.

Program Output - Report Generation

Custom reports can be generated from DWSP to meet MOEE Regional needs and to respond to public requests.

Program Output - Annual Reports

It is the practice of DWSP to produce an annual report containing analytical data along with companion plant information.

FIG. 1

PARAMETER REFERENCE INFORMATION

NAME: BENZENE

CAS#: 71-43-2

MOLECULAR FORMULAE: C_6H_6

DETECTION LIMIT: (FOR METHOD POCODO) 0.05 $\mu g/L$

SYNONYMS: BENZOL; BENZOLE; COAL NAPHTHA; CARBON OIL (27)
CYCLOHEXATRIENE (41)

CHARACTERISTICS: COLOURLESS TO LIGHT-YELLOW, MOBILE, NONPOLAR LIQUID, OF
HIGHLY REFRACTIVE NATURE, AROMATIC ODOUR; VAPOURS BURN
WITH SMOKING FLAME (30)

PROPERTIES: SOLUBILITY IN WATER: 1780-1800 mg/L AT 25°C (41)
THRESHOLD ODOUR: 0.5 - 10 PPM IN WATER
THRESHOLD TASTE: 0.5 mg/L IN WATER (39)
ENVIRONMENTAL FATE: MAY BIOACCUMULATE IN LIVING ORGANISMS
AND APPEARS TO ACCUMULATE IN ANIMAL TISSUES THAT EXHIBIT
A HIGH LIPID CONTENT OR REPRESENT MAJOR METABOLIC SITES,
SUCH AS LIVER OR BRAIN; SMALL QUANTITIES EVAPORATE FROM
SOILS OR ARE DEGRADED RATHER QUICKLY (80)

SOURCES: COMMERCIAL: PETROLEUM REFINING; SOLVENT RECOVERY; COAL TAR
DISTILLATION (39); FOOD PROCESSING AND TANNING INDUSTRIES;
COMBUSTION OF CAR EXHAUST.
ENVIRONMENTAL: POSSIBLE SOURCE IS RUNOFF.

USES: DETERGENTS; NYLON; INTERMEDIATE IN PRODUCTION OF OTHER
COMPOUNDS, SUCH AS PESTICIDES; SOLVENT FOR EXTRACTION AND
RECTIFICATION IN RUBBER INDUSTRY; DEGREASING AND CLEANSING
AGENT; GASOLINE.

REMOVAL: THE FOLLOWING PROCESSES HAVE BEEN SUCCESSFUL IN REMOVING
BENZENE FROM WASTEWATER: GAC ADSORPTION, PRECIPITATION
WITH ALUM AND SUBSEQUENT REMOVAL VIA SEDIMENTATION,
COAGULATION AND FLOCCULATION, SOLVENT EXTRACTION,
OXIDATION

ADDITIONAL PROPERTIES: MOLECULAR WEIGHT: 78.12
MELTING POINT: 5.5°C (27)
BOILING POINT: 80.1°C (27)
SPECIFIC GRAVITY: 0.8790 AT 20°C (27)
VAPOUR PRESSURE: 100 MM AT 26.1°C (27)
HENRY'S LAW CONSTANT: 0.00555 ATM-M³/MOLE (41)
LOG OCT./WATER PARTITION COEFFICIENT: 1.95 TO 2.13 (39)
CARBON ADSORPTION: K=1.0; 1/N=1.6; R=0.97; PH=5.3 (41)
SEDIMENT/WATER PARTITION COEFFICIENT: NO DATA

DWSP SAMPLING GUIDELINE

i) Raw and Treated at Plant

General Chemistry	-500 mL plastic bottle (PET 500) -rinse bottle and cap with sample water three times -fill to 2 cm from top
Bacteriological	-220 mL plastic bottle with white seal on cap -do <u>not</u> rinse bottle, preservative has been added -avoid touching bottle neck or inside of cap -fill to top of red label as marked
Metals	-500 mL plastic bottle (PET 500) -rinse bottle and cap three times -fill to 2 cm from top -add 10 drops nitric acid (HNO_3) (Caution: HNO_3 is corrosive)
Volatiles (duplicates) (OPOPUP)	-45 mL glass vial with septum (teflon side must be in contact with sample) -do <u>not</u> rinse bottle -fill bottle completely without bubbles
Organics (OWOC), (OWTRI)	-1 L amber glass bottle per scan -do <u>not</u> rinse bottle -fill to 2 cm from top
Specific Pesticides (OWCP), (PEOP), (PECAR)	-as per Organics -three extra bottles must be filled
Polyaromatic hydrocarbons (OAPAHX)	-1 L amber glass bottle per scan -do <u>not</u> rinse bottle -fill to 2 cm from top -add 25 drops of sodium thiosulphate
Cyanide (Treated only)	-500 mL plastic bottle (PET 500) -rinse bottle and cap three times -fill to 2 cm from top -add 10 drops sodium hydroxide (NaOH) (Caution: NaOH is corrosive)
Mercury	-250 mL glass bottle -rinse bottle and cap three times -fill to top of label -add 20 drops each nitric acid (HNO_3) - and potassium dichromate ($\text{K}_2\text{Cr}_2\text{O}_7$) (Caution: HNO_3 & $\text{K}_2\text{Cr}_2\text{O}_7$ are corrosive)

Phenols	-250 mL glass bottle -do <u>not</u> rinse bottle, preservative has been added -fill to top of label
Radionuclides (as scheduled)	-4 L plastic jug -do <u>not</u> rinse, carrier added -fill to 5 cm from top
Organic Characterization (GC/MS - once per year) (PBVOL), (PBEXT)	-1 L amber glass bottle; instructions as per organic -250 mL glass bottle -do <u>not</u> rinse bottle -fill completely without bubbles

Steps:

1. Let sampling water tap run for an adequate time to clear the sample line.
2. Record time of day on submission sheet.
3. Record temperature on submission sheet.
4. Fill up all bottles as per instructions.
5. Record chlorine residuals (free, combined and total for treated water only), turbidity and pH on submission sheet.
6. No smoking in area of sample location.

ii) Distribution Samples (standing water)

General Chemistry	-500 mL plastic bottle (PET 500) -rinse bottle and cap with sample water three times -fill to 2 cm from top
Metals	-500 mL plastic bottle (PET 500) -rinse bottle and cap three times -fill to 2 cm from top -add 10 drops nitric acid (HNO_3) (Caution: HNO_3 is corrosive)

Steps:

1. Record time of day on submission sheet.
2. Place bucket under tap and open cold water.
3. Fill to predetermined volume.
4. After mixing the water, record the temperature on the submission sheet.

5. Fill general chemistry and metals bottles.

6. Record chlorine residuals (free, combined and total), turbidity and pH on submission sheet.

iii) Distribution Samples (free flow)

General Chemistry	-500 mL plastic bottle (PET 500) -rinse bottle and cap with sample water three times -fill to 2 cm from top
Bacteriological	-250 mL plastic bottle with white seal on cap -do <u>not</u> rinse bottle, preservative has been added -avoid touching bottle neck or inside of cap -fill to top of red label as marked
Metals	-500 mL plastic bottle (PET 500) -rinse bottle and cap three times -fill to 2 cm from top -add 10 drops nitric acid HNO_3 (Caution: HNO_3 is corrosive)
Volatiles (duplicate) (OPOPUP)	-45 mL glass vial with septum (teflon side must be in contact with sample) -do <u>not</u> rinse bottle, preservative has been added -fill bottle completely without bubbles
Organics (OWOC)	-1 L amber glass bottle per scan -do <u>not</u> rinse bottle -fill to 2 cm from top
Polyaromatic Hydrocarbons (OAPAHX)	-1 L amber glass bottle per scan -do <u>not</u> rinse bottle -fill to 2 cm from top -add 25 drops of sodium thiosulphate

Steps:

1. Record time of day on submission sheet.
2. Let cold water flow for five minutes.
3. Record temperature on submission sheet.
4. Fill all bottles as per instructions.
5. Record chlorine residuals (free, combined and total), turbidity and pH on submission sheet.

